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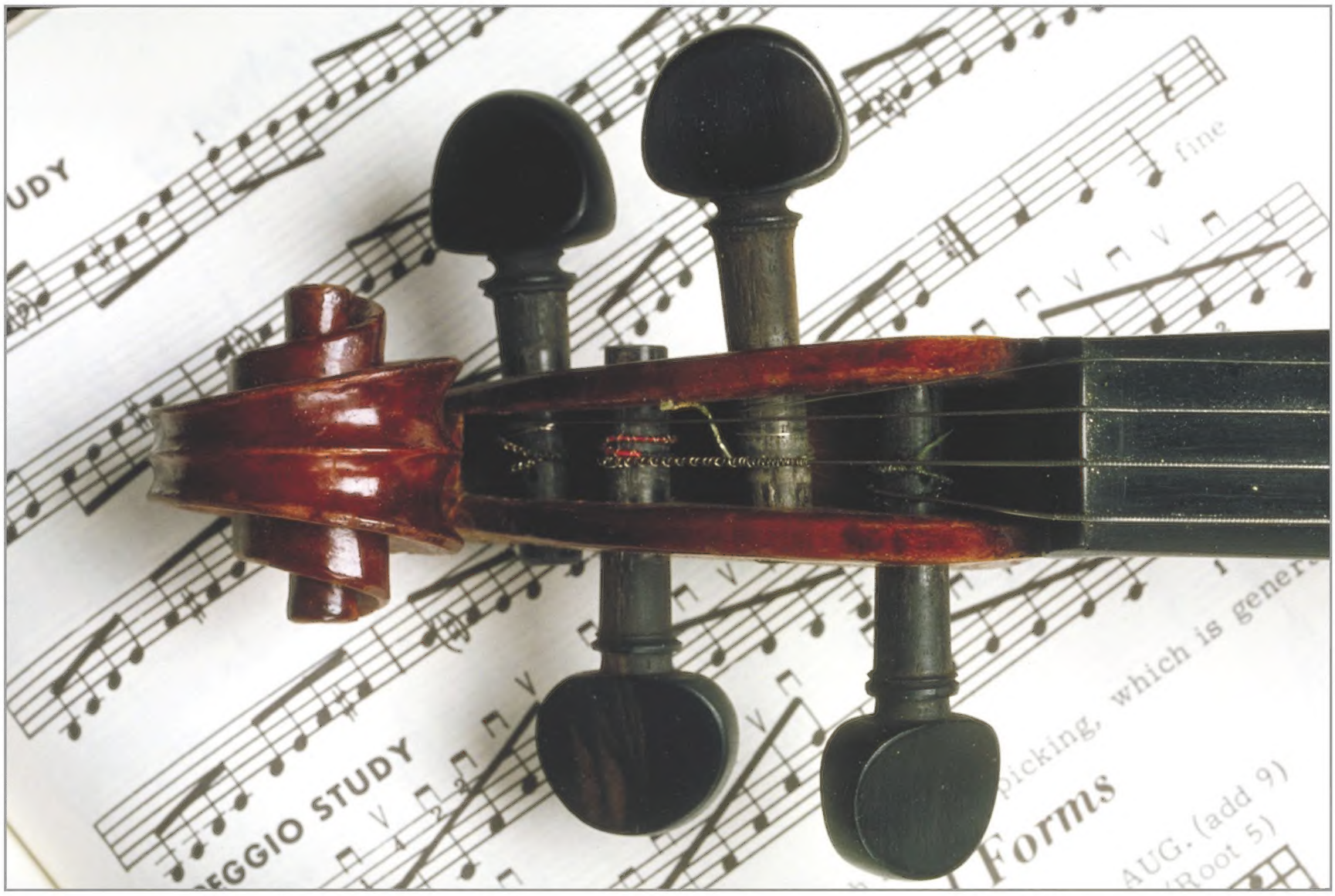

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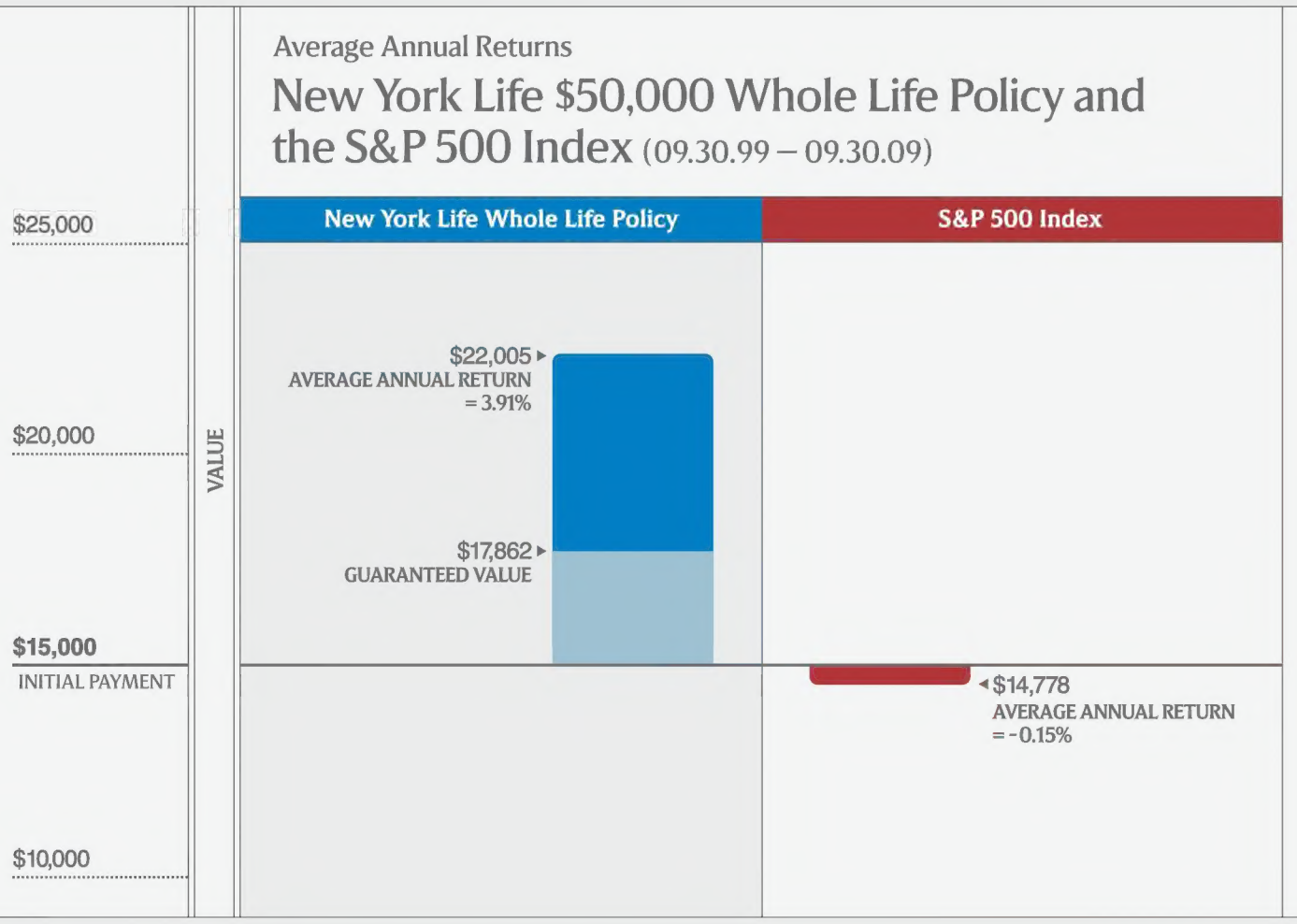

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An adult male lion (in Kenya's Masai Mara Reserve) can reach ten feet in length and weigh upwards of 400 pounds.
PHOTOGRAPH BY JEFF VANUGA / NATUREPL.COM

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Butcher Axel Schäfer (in his Düsseldorf shop) laments the decline of craftsmanship.
PHOTOGRAPH BY ANDREAS TEICHMANN

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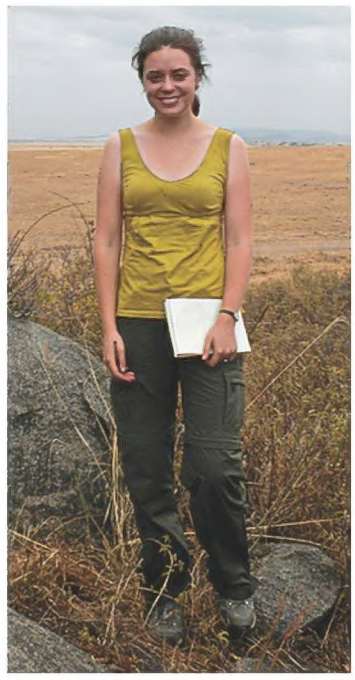
FROM THE EDITOR

Meat and Potatoes

Of carnivores and herbivores **BY CAREY WINFREY**

FOR HER FIRST encounter with lions in the wild, staff writer Abigail Tucker flew to Tanzania and hung out in the Serengeti with Craig Packer, the world's foremost expert on *Panthera leo*. "I really couldn't process how beautiful the animal was," she says of the first lion she saw up close. "He was just much more huge and gorgeous than anything I had expected. There was something so scornful about him. He didn't move a muscle when we came near him. He just fixed us with this look, and it was like confronting some kind of aristocrat. We were up in a big car looking down on him, but somehow he was in charge. I later found out his name was Viking, which was appropriate."



Tucker: "Lions are not a given on earth."

Packer, she discovered, is a man of unrelenting curiosity. "He actually figured out the purpose of the lion's mane. He delved into these obvious questions and came up with really smart answers." (How does Packer account for the lion's mane? See "The Truth About Lions," p. 28.)

"I hope," says Tucker, "that people see that lions are not a given on earth, and that it's totally possible we could someday live in a world where there aren't any lions. It would be a very shabby world."

Blechman: Hard-wired in an unusual way.

ALEXANDRA SWANSON; HOLLY ROCKWELL

ANDREW D. BLECHMAN last graced our pages with a story about racing pigeons, which he later expanded into a book, *Pigeons*. This time out, the subject is sausage. "I think I'm hard-wired in an unusual way," he says. "I'm just passionate about other people's passions." He learned about pigeon races while waiting in line at a corner bodega to buy a tuna-fish sandwich in New York City. This time, it was a butcher in Düsseldorf, Germany, where he and his family now live, who "turned into a vegetarian and opened a vegetarian lunch counter at his butchery. How often does that happen? And on top of it, he's a fascinating guy with a great story to tell." (See "Wurst Case Scenario," p. 72.)

The plight of the German butcher, Blechman says, is emblematic of widespread changes in German society, as traditional crafts disappear: "The butcher profession is definitely going down the drain. A lot of other professions are, too. For me, it's sad to see the loss of craftsmanship. Germany had a culture that really admired craftsmanship and expected it. What's different now is that the younger generation cares only about price. Just price, price, price." And that emphasis, as his story suggests, has its costs.

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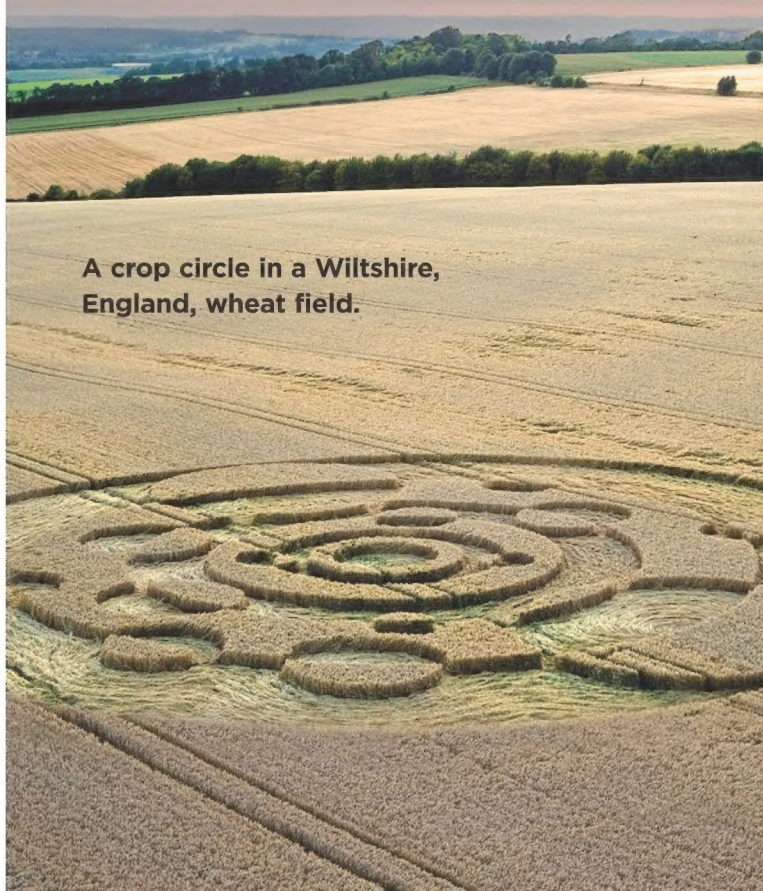

A crop circle in a Wiltshire, England, wheat field.

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LETTERS

READERS RESPOND TO THE **NOVEMBER** ISSUE

Pico Iyer's "The Great Wide Open" took me back to the time I once spent in Alaska and made me recall the quality of the air—so clean and fresh you could almost bite it. **GEORGE OLSEN,** FORT LAUDERDALE, FLORIDA

OUT OF FASHION

I WAS STARTING to enjoy "The Great Wide Open" until I turned the page and saw an image of a woman wearing a lynx fur hat. I had always believed that cherishing Nature's beauty also meant loving the wildlife that is an integral part of it.

ROBIN CHING
KAPOLEI, HAWAII

BAD TIMING

ON VETERANS DAY I sat down to read "The Battle of Arlington." I felt it expressed more sympathy for the struggle of Gen. Robert E. Lee's family to hold onto the Arlington property than for what the property has come to symbolize. It seemed a slap in the face of the current "residents" of Arlington National Cemetery who have given so much more to this country than the Lee family ever has. The timing was not appreciated.

MATT LUNGARO
NEW LENOX, ILLINOIS

ROBERT M. POOLE'S November article about Robert E. Lee's house on Arlington Heights was exceptional.

PAT SULLIVAN
COLLEYVILLE, TEXAS

PICTURING POLLOCK

HENRY ADAMS' discovery of Jackson Pollock's name hidden in the brushstrokes of *Mural* ["Decoding Jackson Pollock"] is an example of pareidolia, a psychological phenomenon involving a vague random image being perceived as significant. He says no one has claimed to see Pollock's name in the painting before. This is because the name is not in the painting. It is in Mr. Adams' head.

OWEN FINDSEN
CINCINNATI, OHIO

IN SUPPORT of his own theory about Jackson Pollock's name in *Mural*, Adams said Pollock wanted *Mural* to be like a Thomas Hart Benton work, but that he, Pollock, needed to do something different. Well, Benton often drew his own portrait in his murals, and Pollock, using his talent in his own way, probably decided to paint his abstract self-portrait in the characters of his name in *Mural*.

ROBIN BRADY
SILVER SPRING, MARYLAND

CORRECTIONS:

In the Alaska story, the author suggests he flew above 20,300-foot-high Denali in an open-door plane. He did not fly that high. The story also states that the Aleutian Islands cross the International Date Line; they cross the 180th meridian. The photograph of prairie dogs on page 3 was incorrectly attributed. It was taken by Morgan Heim.

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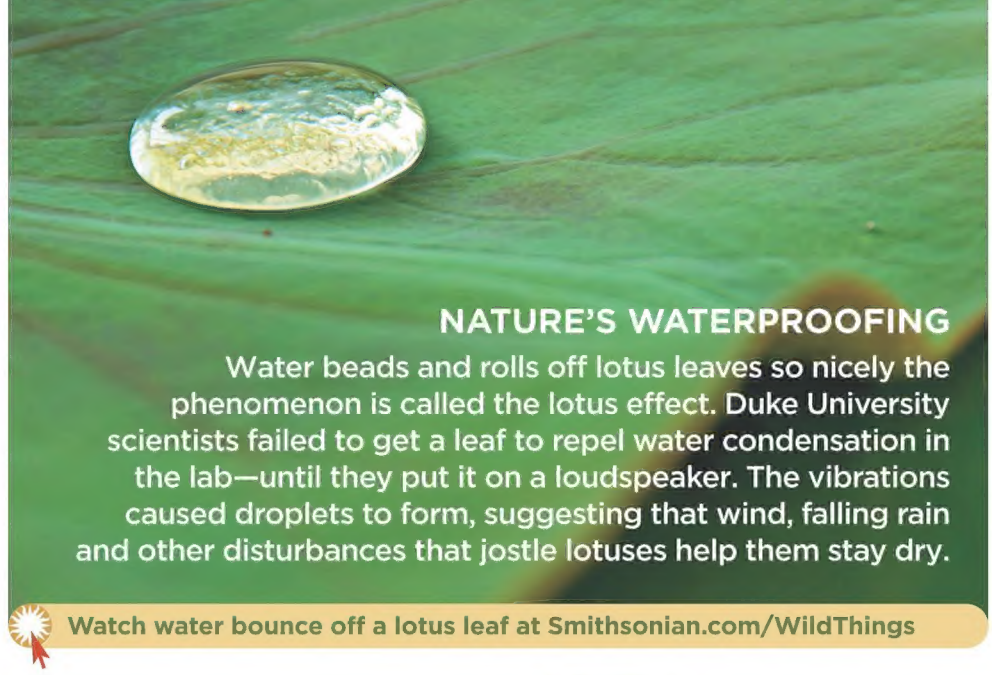
WILD THINGS

LIFE AS WE KNOW IT

BY AMANDA BENSEN, ABBY CALLARD, T.A. FRAIL AND LAURA HELMUTH



NATURE'S WATERPROOFING

Water beads and rolls off lotus leaves so nicely the phenomenon is called the lotus effect. Duke University scientists failed to get a leaf to repel water condensation in the lab—until they put it on a loudspeaker. The vibrations caused droplets to form, suggesting that wind, falling rain and other disturbances that jostle lotuses help them stay dry.

Watch water bounce off a lotus leaf at Smithsonian.com/WildThings

DINOSAUR SPECIES VANISH!

The dinosaurs above have been considered three species (from left: *Dracorex hogwartsia*, *Stygimoloch spinifer* and *Pachycephalosaurus wyomingensis*). But a new analysis of fossil skulls led by the University of Montana suggests they're different life stages of *P. wyomingensis*, whose horns disappear and dome head grows over time. The find fuels speculation that up to a third of recognized dinosaur species are in fact juvenile forms of other species.

Observed

NAME: The Australian redback spider (*Latrodectus hasselti*), a cousin of the black widow.
BRAVE HEART: To mate, a male spider, which is much smaller (above: atop a red-bodied female), must vibrate the strings of a female's web. If he approaches too soon, she eats him.
WISE GUY: But a second male may crash the courtship rite and mate—and walk away without a fang mark on him.
UNFAIR LADY: It's all in the timing, researchers at the University of Toronto Scarborough say. After a courtship of about 100 minutes, they found, the female is ready to mate, but she doesn't distinguish among suitors. The intruder's exploitation of her lack of discrimination, they say, has not been identified in another species.

TRAVEL ADVISORY

At least five species of birds that breed in North America in spring or summer (a yellow-billed cuckoo) breed again, in Mexico, en route to their southern wintering grounds, say University of Washington-led researchers. Such "migratory double breeding" had not been documented in the Americas before. The loss of Mexican nesting grounds may explain some birds' population declines.

PLANNING FOR EXTREME WEATHER

Sea stars stranded at low tide can be exposed to brutal sunlight for hours. How do they beat the heat? *Pisaster ochraceus* regulates its body temperature by sucking up water during high tide, say scientists led by the University of South Carolina. And after a hot day, the sea stars take in even more water at the next opportunity. The cooling system lets sea stars stay closer to their preferred prey—mussels—which live higher on shore.

STUART CORLETT / WWW.CORLETTIMAGES.COM; HOLLY WOODWARD (3); TIM WINBORNE / REUTERS; RICHARD & SUSAN DAY / VIREO; MICHAEL MELFORD / NATIONAL GEOGRAPHIC STOCK

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Finding Phineas

An accident with a tamping iron made Phineas Gage one of the most famous names in neuroscience. Now there's a face to go with it **BY STEVE TWOMEY**

JACK AND BEVERLY WILGUS, collectors of vintage photographs, no longer recall how they came by the 19th-century daguerreotype of a disfigured yet still-handsome man. It was at least 30 years ago. The photograph offered no clues as to where or precisely when it had been taken, who the man was or why he was holding a tapered rod. But the Wilguses speculated that the rod might be a harpoon, and the man's closed eye and scarred brow the result of an encounter with a whale.

So over the years, as the picture rested in a display case in the couple's Baltimore home, they thought of the man in the daguerreotype as the battered whaler.

In December 2007, Beverly posted a scan of the image on Flickr, the photo-sharing Web site, and titled it "One-Eyed Man with Harpoon." Soon, a whaling enthusiast e-mailed her a dissent: that is no harpoon, which suggested that the man was no whaler. Months later, another correspondent told her that the man might be Phineas Gage and, if so, this would be the first known image of him.

Beverly, who had never heard of Gage, went online and found an astonishing tale.

In 1848, Gage, 25, was the foreman of a crew cutting a railroad bed in Cavendish, Vermont. On September 13, as he was using a tamping iron to pack explosive powder into a hole, the powder detonated. The tamping iron—43 inches long, 1.25 inches in diameter and weighing 13.25 pounds—shot skyward, penetrated Gage's left cheek, ripped into his brain and exited through his skull, landing several dozen feet away. Though blinded in his left eye, he might not even have lost consciousness, and he remained savvy enough to tell a doctor that day, "Here is business enough for you."

"Here is business enough for you," Gage (left) told the first doctor to treat him after a premature detonation on a railroad-building site turned a tamping iron into a missile.

Gage's initial survival would have ensured him a measure of celebrity, but his name was etched into history by observations made by John Martyn Harlow, the doctor who treated him for a few months afterward. Gage's friends found him "no longer Gage," Harlow wrote. The balance between his "intellectual faculties and animal propensities" seemed gone. He could not stick to plans, uttered "the grossest profanity" and showed "little deference for his fellows." The railroad-construction company that employed him, which had thought him a model foreman, refused to take him back. So Gage went to work at a stable in New Hampshire, drove coaches in Chile and eventually joined relatives in San Francisco, where he died in May 1860, at age 36, after a series of seizures.

In time, Gage became the most famous patient in the annals of neuroscience, because his case was the first to suggest a link between brain trauma and personality change. In his book *An Odd Kind of Fame: Stories of Phineas Gage*, the University of Melbourne's Malcolm Macmillan writes that two-thirds of introductory psychology textbooks mention Gage. Even today, his skull, the tamping iron and a mask of his face made while he was alive are the most sought-out items at the Warren Anatomical Museum on the Harvard Medical School campus.

Michael Spurlock, a database administrator in Missoula, Montana, happened upon the Wilgus daguerreotype on Flickr in December 2008. As soon as he saw the object the one-eyed man held, Spurlock knew it was not a harpoon. Too short. No wooden shaft. It looked more like a tamping iron, he thought. Instantly, a name popped into his head: Phineas Gage. Spurlock knew the Gage story well enough to know that any photograph of him would be the first to come to light. He knew enough, too, to be intrigued by Gage's appearance, if it was Gage. Over the years, accounts of his changed character had gone far beyond Harlow's observations, Macmillan says, turning him into an ill-tempered, shiftless drunk. But the man in

P. 8 FROM THE COLLECTION OF JACK AND BEVERLY WILGUS (IMAGE LATERALLY REVERSED TO SHOW THE FEATURES IN THE CORRECT POSITION SINCE DAGUERREOTYPE IS A MIRROR IMAGE)

"There's writing on that rod!" he said. And part of it seemed to read, "through the head of Mr. Phi . . ."

To identify the subject of their daguerreotype, Beverly and Jack Wilgus (below) compared it with Gage's skull and a mask that had been made of his face.

the Flickr photograph seemed well-dressed and confident.

It was Spurlock who told the Wilguses that the man in their daguerreotype might be Gage. After Beverly finished her online research, she and Jack concluded that the man probably was. She e-mailed a scan of the photograph to the Warren museum. Eventually it reached Jack Eckert, the public-services librarian at Harvard's Center for the History of Medicine. "Such a 'wow' moment," Eckert recalls. It had to be Gage, he determined. How many mid-19th-century men with a mangled eye and scarred forehead had their portrait taken holding a metal tool? A tool with an inscription on it?

The Wilguses had never noticed the inscription; after all, the daguerreotype measures only 2.75 inches by 3.25 inches. But a few days after receiving Spurlock's tip, Jack, a retired photography professor, was focusing a camera to take a picture of his photograph. "There's writing on that rod!" Jack said. He couldn't read it all, but part of it seemed to say, "through the head of Mr. Phi . . . "

In March 2009, Jack and Beverly went to Harvard to compare their picture with Gage's mask and the tamping iron, which had been inscribed in Gage's lifetime: "This is the bar that was shot through the head of Mr. Phinehas P. Gage," it reads, misspelling the name.

Harvard has not officially declared that the daguerreotype is of Gage, but Macmillan, whom the Wilguses contacted next, is quite certain. He has also learned of another photograph, he says, kept by a descendant of Gage's.

As for Spurlock, when he got word that his hunch was apparently correct, "I threw open the hallway door and told my wife, 'I played a part in a historical discovery!' "

STEVE TWOMEY *is based in New Jersey. He wrote about map and document thieves for the April 2008 issue of* SMITHSONIAN.

View more items from the collection of the Anatomical Museum at Smithsonian.com/warren

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THIS MONTH IN HISTORY

JANUARY ANNIVERSARIES
MOMENTOUS OR MERELY MEMORABLE

BY ALISON McLEAN

60 YEARS AGO
CHOCOLATE POCKET

Raytheon engineer Percy Spencer patents the microwave oven, January 24, 1950. The idea came to him when working with magnetron tubes for use in radar; he discovered they melted the chocolate in his pocket, then popped some nearby corn. Initially sold for commercial use for $2,000 (below: a 1947 demo), today microwave ovens cook in over 90% of American kitchens.

120 YEARS AGO
AMAZING RACE

Greeted at the train station by a horde of cheering readers, *New York World* journalist Nellie Bly, 25, arrives in New Jersey on January 25, 1890, a record 72 days 6 hours 11 minutes after leaving, to beat *Cosmopolitan*'s Elizabeth Bisland in a race around the world. Bly's 21,740-mile journey includes a meeting with Jules Verne, creator of Phileas Fogg, whose 80-day record she believes can be bested—and by a woman, to boot. On her return Bly—born Elizabeth Cochran, she takes her pen name from a Stephen Foster song—publishes an account of her trip, *Around the World in 72 Days,* to robust sales.

50 YEARS AGO BOTTOM'S UP

Swiss engineer Jacques Piccard and U.S. Navy Lt. Don Walsh make the world's deepest manned dive, January 23, 1960, in the bathyscaph *Trieste*—a deep-sea research sub designed by Piccard's father. Their seven-mile descent to the floor of Challenger Deep in the Pacific's Mariana Trench—the deepest point in the oceans—takes nearly five hours. On the bottom they see fish—proof of life and oxygen at extreme depths. In June 2009 a robot sub retrieves samples from the trench that may reveal new information about tectonic plate collisions.

350 YEARS AGO WORDS TO LIVE BY

"Blessed be God, at the end of the last year I was in very good health." On January 1, 1660, English naval administrator Samuel Pepys begins one of literature's most famous diaries. For a decade he chronicles London affairs—of state and the heart—the war with the Dutch, a plague outbreak and the Great Fire of 1666. His colorful details—a murderer, on being drawn and quartered, looks "as cheerfully as any man could in that condition"—make the diary good history and, after its publication in 1825, good reading. Pepys dies in 1703, age 70.

150 YEARS AGO A DRAMATIC LIFE

Anton Pavlovich Chekhov is born, the son of a grocer, in Taganrog, Russia, January 29, 1860. A doctor by profession, Chekhov as a young man is known for his comedic stories. His writing takes a more serious turn with the publication of a novella, *Steppe*, in 1888. More than 50 short stories and plays—including *The Seagull* (1896), *Uncle Vanya* (1897), *Three Sisters* (1901), *The Cherry Orchard* (1904)—follow. The works masterfullly chronicle the mundane lives and pent-up emotions of his three-dimensional characters. Chekhov dies of tuberculosis in 1904, age 44.

GRANGER COLLECTION, NEW YORK; THOMAS J. ABERCROMBIE / NATIONAL GEOGRAPHIC / GETTY IMAGES; BETTMANN / CORBIS; GRANGER COLLECTION, NEW YORK; BETTMANN / CORBIS

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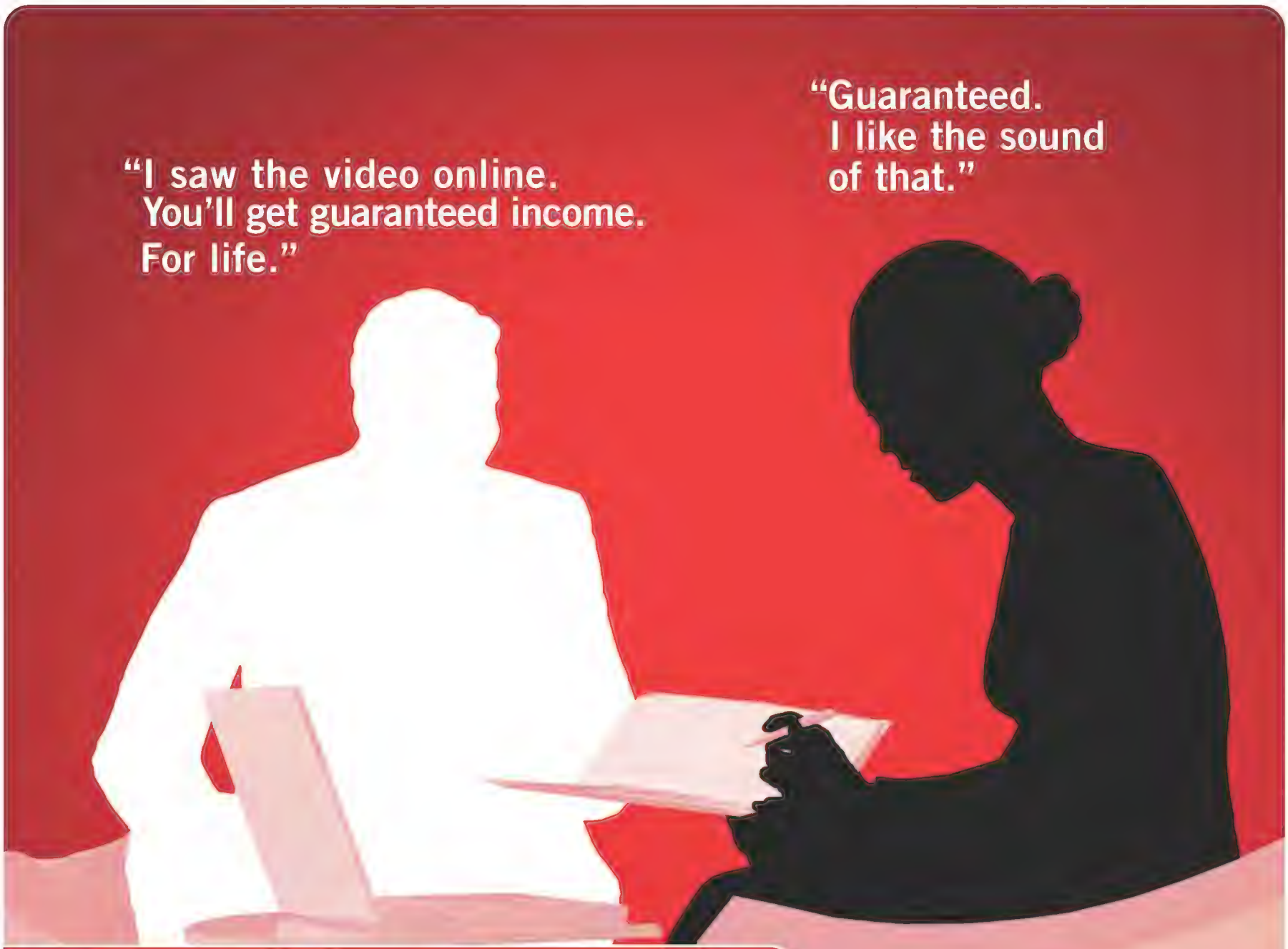

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YOUR KIND OF TOWN

OAKWOOD, OHIO
BY DAVE BOHMAN

I HAVE LIVED IN SEVERAL COMMUNITIES in the United States but have never encountered the hometown feeling of Oakwood, Ohio, a suburb of Dayton. The feeling of community and the beauty of the homes are unmatched. Oakwood was also the home of Orville Wright for most of his adult life, and his mansion on Hawthorn Hill (above) is now a national historic landmark. A visit to the Wright Memorial Public Library is a must. Look at the plaque inside the front door and you will see the names of the board members who got the library built in 1939. When you see "Orville Wright, Vice President" and consider the man's accomplishments, you realize how proud you are to have been a part of Oakwood and say it was your hometown.

Submit a **Your Kind of Town** story or photograph and find others at Smithsonian.com/yourkindoftown

DISCOVERING LIFE

It's encouraging to learn there are still places on this planet of ours that house such mysteries. Makes life exciting and is humbling to know we don't have all the answers.

—Roger Thrush, on "Evolution in the Deepest River in the World," about the discovery of new species in the Congo River
Smithsonian.com/congoriver

PHOTO CONTEST EDITORS' PICK

"On a walk I came across some very large hosta plants and photographed them. I returned many times. When fall was approaching, I thought they would offer unique possibilities."

—Russ Martin, New York State, on his 2006 photograph

YEASTY DEBATE

The thought of Vegemite is too horrible to contemplate. Vegemite is too sweet and pasty. Marmite is like drowning your taste buds in the La Brea Tar Pits, leaving them to an eternity or at least several minutes of tangy and savory dreams.

—Hugh Powell, Williamstown, Massachusetts, on the Marmite-Vegemite debate on the Food & Think blog
Smithsonian.com/vegemite

JIM CROTTY; SKIP BROWN; TONY ROBINS / PHOTOLIBRARY; RUSS MARTIN

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MY KIND OF TOWN

BUCKHANNON, WEST VIRGINIA

House Calls and Tree Houses

A community in the Allegheny foothills was "the perfect birthplace for a writer" **BY JAYNE ANNE PHILLIPS** PHOTOGRAPHS BY JEFF SWENSEN

I GREW UP IN THE DENSE, verdant Appalachia of the '50s and '60s. For me, "hometown" refers to a small town, home to generations of family, a place whose history is interspersed with family stories and myths. Buckhannon was a town of 6,500 or so then, nestled in the foothills of the Allegheny Mountains of north-central West Virginia.

I left for college, but went "home" for years to see my divorced parents, and then to visit their graves in the rolling cemetery that splays its green acreage on either side of the winding road where my father taught me to drive. I know now that I loved Buckhannon, that its long history and layers of stories made it the perfect birthplace for a writer. My mother had grown up there, as had most of her friends, and their mothers before them. People stayed in Buckhannon all their lives. Despite the sometimes doubtful economy, no one wanted to leave, or so it seemed to me as a child.

Buckhannon was beautiful, the county seat, home to West Virginia Wesleyan, a Methodist college whose football field on College Avenue served both the college and high-school teams. Main Street was thriving. Local people owned the stores and restaurants. We lived out on a rural road in a ranch-style brick house my father had built. Two local newspapers, *The Buckhannon Record* and *The Republican Delta*, were delivered weekdays,

"Town rituals, seasonal and dependable (above: the Strawberry Festival parade), provided a world," says Phillips.

BOTTOM: ELENA SEIBERT

thrust into the round receptacle next to our mailbox at the end of the driveway. My father went to town early on Sundays to buy the *Charleston Gazette* at the Acme Bookstore on Main Street. The Acme smelled of sawdust and sold newspapers, magazines, school supplies and comic books. Comic books were Sunday treats. I think of my father, vital and healthy, younger than I am now, perusing the racks, choosing a 15-cent Superman or Archie for my brothers, Millie the Model or a Classics Illustrated for me. An addicted reader early on, I first read R. D. Blackmore's *Lorna Doone* and George Eliot's *Silas Marner* as comics, before finding the original versions in the library, where I'd replenish armloads of borrowed books under my mother's watchful eye. She'd finished college, studying at night while her children slept, and taught first grade in the same school her children attended.

I looked out the windows of Academy Primary School and saw, across South Kanawha Street, the large house in which my mother had lived until she married my father. My mother had graduated from high school in 1943, and my father, nearly a generation earlier, in 1928, but he wasn't a true native. Born in neighboring Randolph County, he was raised by three doting paternal aunts. Each took him into their families for a few years, and he'd moved to Buckhannon for high school, winning the elocution contest and giving a speech at graduation. This fact always amazed me. My father, masculine in bearing and gesture, was not a talker. Women in Buckhannon told stories, and men were defined by their jobs. He attended the local college for a semester, then went to work, building roads, learning construction. His first name was Russell; for years, he owned a concrete company: Russ Concrete. My brothers and I rode to school past bus shelters emblazoned with the name. We seemed to have lived in Buckhannon forever.

In a sense, we had. Both sides of the family had helped settle western Virginia when the land was still a territory. My mother traced her people back to a

PRINGLE TREE
This hollow sycamore is the third generation tree that provided a home for the first settlers in this area of West Virginia. John and Samuel Pringle, after fleeing from Fort Pitt, lived here 1764-1767

Phillips (above: at age 4) remembers "the loamy smell" of the Pringle Tree (below), a descendant of the sycamore that sheltered the area's first settlers.

great-aunt had spoken of the "bad old days" of the Civil War. Her people had fought for the Union, but the Phillips men, a county south, were Confederates. The family donated the land for the Phillips Cemetery in the early 1870s, when the new state lay devastated in the wake of the war. Buckhannon families still told stories of those years. The past and the present were endlessly intermingled, and West Virginia history was an eighth-grade tradition. Every kid in town knew that English brothers John and Samuel Pringle had turned their backs on the English crown during the French and Indian War, deserting their posts at Fort Pitt in 1761 and traveling south on foot. They lived off the land for three years until they arrived at the mouth of what became the Buckhannon River, following it to find shelter in the vast cavity of a sycamore. The unmolested forests were full of gigantic trees 40 or 50 feet in circumference, and the 11-foot-deep cavity would have provided living space of about 100 square feet, the equivalent of a 10-by-10 room. The brothers survived the frigid winters on plentiful game, waiting out the war until they ran out of gunpowder. John Pringle traveled 200 miles for supplies and returned with news that amnesty was declared. The brothers moved to settlements farther south, but Samuel returned with a wife and other settlers whose names are common in Buckhannon today: Cutright, Jackson, Hughes.

Buckhannon adolescents still visit a third-generation descendant of the original sycamore on field trips. In 1964, my eighth-grade class drove to the meadow along Turkey Run Creek. The buses bounced and groaned, and we all lined up to walk into the tepee-size opening of what is still officially designated the Pringle Tree. I remember the loamy smell rising from the earth, damp, fertile and hidden. Somehow the version of the Pringle brothers' story that we learned didn't emphasize that they left a war to found a settlement in country so virgin and wild they had only to enter it to escape the bonds of military servitude. Wilderness was freedom.

The town was truly a rural paradise; even into the 1920s, some 2,000 farms, averaging 87 acres each, surrounded Buckhannon. Such small, nearly self-sufficient farms survived through the Depression and two world wars. Miners and farmers kept Main Street alive, and the town rituals, seasonal and dependable, provided a world. Everyone knew everyone, and everyone's story was known. There were churches of every Protestant denomination and one Catholic parish. Parades were held on Veterans Day, Memorial Day and the Fourth of July. A week in the middle of May is still devoted to the Strawberry Festival. The populace lines up on the main thoroughfare to watch hours of marching bands, homemade floats and home-crowned royalty. The year my cousin was queen, I was 6 and one of the

TOP: COURTESY OF JAYNE ANNE PHILLIPS

girls in her court. We wore white organdy dresses and waved regally from the queen's frothy float. The parade wound its way through town, slowly, for hours, as though populating a collective dream. Though the queen wore her tiara all summer, the town's everyday royalty were its doctors and dentists, the professors at the college, and the football coaches who'd taken the high-school team to the state championships three times in a decade. Doctors, especially respected and revered, made house calls.

The long dark hallway to our doctor's office on Main Street led steeply upstairs and the black rubber treads on the steps absorbed all sound. Even the kids called him Jake. He was tall and bald and sardonic, and he could produce dimes from behind the necks and ears of his young patients, unfurling his closed hand to reveal the sparkle of the coin. The waiting room was always full and the office smelled strongly of rubbing alcohol. The walls were hung with framed collages of the hundreds of babies he'd delivered. My mother insisted on flu shots every year, and we kids dreaded them, but Jake was a master of distraction, bantering and performing while the nurse prepared slender hypodermics. After our shots, we picked cellophane-wrapped suckers from the candy jar, sauntered into the dim stairwell and floated straight down. The rectangular transom above the door to the street shone a dazzling white light. Out there, the three traffic lights on

The author's memories of Buckhannon are "rinsed with color" and "layers of story" (above: the home-crowned royalty of the Strawberry Festival; below: the dome of the courthouse).

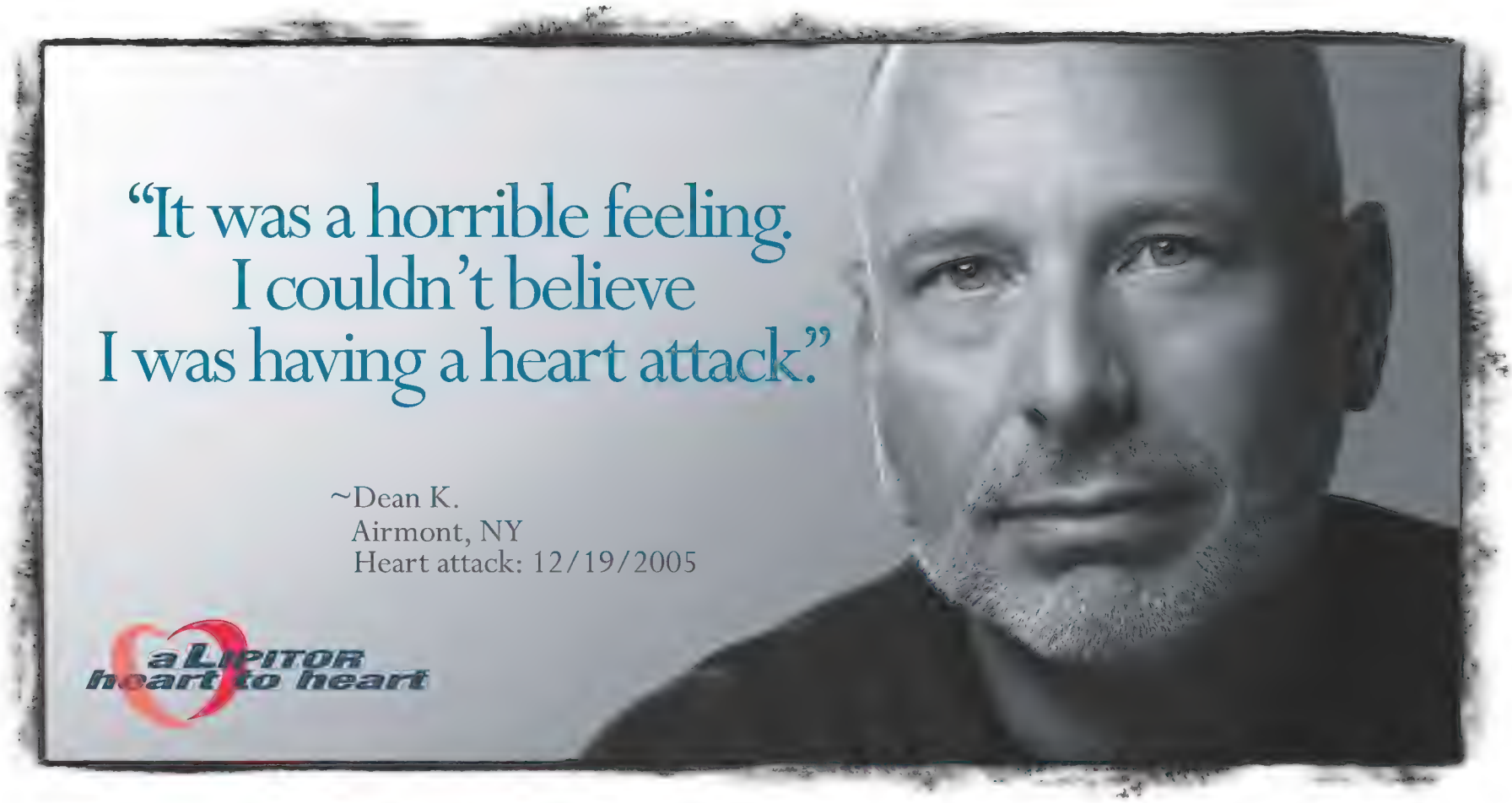
Main Street were changing with little clicks. We'd drive the two miles or so home, past the fairgrounds and fields, in my mother's two-tone Mercury sedan. The car was aqua and white, big and flat as a boat. My father would be cooking fried potatoes in the kitchen, "starting supper," the only domestic chore he ever performed. I knew he'd learned to peel potatoes in the Army, cutting their peels in one continuous spiral motion.

My dad, who was past 30 when he enlisted, served as an Army engineer and built airstrips in New Guinea throughout World War II, foreman to crews of G.I.'s and Papuan natives. He came back to Buckhannon after the war and met my mother at a Veterans of Foreign Wars dance in 1948. During the war she'd trained as a nurse in Washington, D.C. The big city was exciting, she told me, but the food was so bad all the girls took up smoking to cut their appetites. A family illness forced her return; she came home to nurse her mother. My grandmother was still well enough that my mother went out Saturday nights; she wore red lipstick and her dark hair in a chignon. My father looked at her across the dance floor of the VFW hall and told a friend, "I'm going to marry that girl." He was 38; she, 23. He was handsome, a man about town; he had a job and a car, and his family owned a local hospital. They married three weeks later. In the winter of '53, when my mother had three young children under the age of 5, Dr. Jake made a house call. She was undernourished, he told her. Though she'd quit during her pregnancies, she was smoking again and down to 100 pounds. She told me how Jake sat beside her bed, his black medical bag on the floor. "Now," he said, lighting two cigarettes, "we're going to smoke this last one together."

Hometowns are full of stories and memories rinsed with color. The dome of the courthouse in Buckhannon glowed gold, and Kanawha Hill was lined with tall trees whose dense, leafy branches met over the street. The branches lifted as cars passed, dappling sunlight or showering snow. Open fields bordered our house. Tasseled corn filled them in summer, and thick stalks of Queen Anne's lace broke like fuzzy limbs. Cows grazing the high-banked meadow across the road gazed over at us placidly. They sometimes spooked and took off like clumsy girls, rolling their eyes and lolloping out of sight. Telephone numbers were three digits; ours was 788. The fields are gone now, but the number stays in my mind. Towns change; they grow or diminish, but hometowns remain as we left them. Later, they appear, brilliant with sounds and smells, intense, suspended images moving in time. We close our eyes and make them real.

JAYNE ANNE PHILLIPS *was a 2009 National Book Award finalist in fiction for her latest novel,* Lark and Termite.

Read more contributions to My Kind of Town at Smithsonian.com/mykindoftown



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- If you drink more than 2 alcoholic drinks a day
- If you have diabetes or kidney problems
- If you have a thyroid problem

ABOUT LIPITOR

LIPITOR is a prescription medicine. Along with diet and exercise, it lowers "bad" cholesterol in your blood. It can also raise "good" cholesterol (HDL-C).

LIPITOR can lower the risk of heart attack, stroke, certain types of heart surgery, and chest pain in patients who have heart disease or risk factors for heart disease such as:

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POSSIBLE SIDE EFFECTS OF LIPITOR

Serious side effects in a small number of people:

- **Muscle problems** that can lead to kidney problems, including kidney failure. Your chance for muscle problems is higher if you take certain other medicines with LIPITOR.
- **Liver problems.** Your doctor may do blood tests to check your liver before you start LIPITOR and while you are taking it.

Call your doctor right away if you have:

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- Nausea, vomiting, or stomach pain
- Brown or dark-colored urine
- Feeling more tired than usual
- Your skin and the whites of your eyes turn yellow
- Allergic skin reactions

Common side effects of LIPITOR are:

- Diarrhea
- Upset stomach
- Muscle and joint pain
- Changes in some blood tests

HOW TO TAKE LIPITOR

Do:

- Take LIPITOR as prescribed by your doctor.
- Try to eat heart-healthy foods while you take LIPITOR.
- Take LIPITOR at any time of day, with or without food.
- If you miss a dose, take it as soon as you remember. But if it has been more than 12 hours since your missed dose, wait. Take the next dose at your regular time.

Don't:

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Around the Mall

SCENES AND SIGHTINGS FROM THE SMITHSONIAN MUSEUMS AND BEYOND

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BACK TO THE MOON

THE SMITHSONIAN INSTITUTION PITCHES IN TO HELP NASA PREPARE FOR ITS NEXT LUNAR MISSION

PAGE 23

Astronaut Andrew Thomas collects "moon rocks" in the Arizona desert. NASA hopes to return to the moon by 2020.

FROM THE CASTLE

What to Collect?

G. WAYNE CLOUGH

AFTER THE 9/11 ATTACKS, 20 Tibetan Buddhist monks came to the Smithsonian to help America heal. By making a sand mandala. For days they created colorful lines and intricate patterns by putting down sand—a few grains at a time, in many bright hues—on a large wood platform in the Sackler Gallery. The result was an astonishingly beautiful sand painting. After two weeks, expressing their belief that material life is transitory, the monks swept up the sand and poured it into the Potomac; curators respected their decision, despite the fact that a basic Smithsonian mandate is to preserve valuable artifacts forever. The Institution's history, art and culture collections connect us to our nation's past, identity and creative spirit—and to the world's diverse cultures.

To underscore the transitory nature of material life, Tibetan monks (top) poured their mandala (above) into the Potomac.

Our scientific specimens increase understanding of our planet's formation and biodiversity. New DNA testing makes our biological specimens ever more valuable as they enter the world's genetic database, and DNA barcoding makes rapid identification of species possible.

How do our curators decide what to collect? The Star-Spangled Banner, Thomas Edison's light bulb, Joe Louis' boxing gloves and John Glenn's spacesuit were clearly musts. Other artifacts are less obvious. In 2001, curators interviewed Julia Child. Standing in her kitchen, they realized its significance and asked for its entire contents. Two months later, 55 boxes and crates arrived. The Julia Child kitchen exhibit is now one of our most popular (see americanhistory.si.edu/juliachild/). The Smithsonian's Recovering Voices program collaborates with indigenous communities to document and sustain the world's endangered languages. Among other collections, the program draws on countless audio recordings and our collection of Native American language manuscripts—the world's largest. The National Portrait Gallery's collection of celebrity caricatures from the 1920s and '30s gives us a glimpse into that era's popular culture and its attitudes about mass-media-generated fame, public identity, race and gender.

The Smithsonian's collections transport us back millions of years to humanity's beginnings, and far beyond. The Allende meteorite, formed 4.56 billion years ago, is the world's oldest known natural specimen—and the oldest object at the Smithsonian. It contains diamonds from dozens of supernovas and amino acids that could have provided the raw materials for early life forms. We'll certainly keep it forever, as we will photographs and other documentation of the marvelous 9/11 mandala.

View more photographs of the sand painting at Smithsonian.com/mandala

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G. WAYNE CLOUGH *is Secretary of the Smithsonian Institution.*

Smithsonian Institution

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JOHN TSANTES / SACKLER GALLERY, SI (2)

RIDING IN COMFORT

NASA'S NEXT GENERATION LUNAR ROVER IS A "HOME ON WHEELS"

BRENT GARRY PEERS DOWN from a National Air and Space Museum walkway at the Apollo lunar module, the astronauts' home on missions to the moon in the late '60s and early '70s. Inside, the crew would suit up—a process that took about two hours—to explore the lunar surface. During the first three manned missions, Apollo 11, 12 and 14, the astronauts roamed the moon's surface on foot. But by Apollo 15, 16 and 17, they had a four-wheeled, open-air vehicle that sported two seats that looked something like lawn chairs.

Garry, a planetary geologist at the museum's Center for Earth and Planetary Studies, displays a photograph of a bug-like vehicle rolling through rust-colored desert. It's the Lunar Electric Rover (LER), a prototype for the vehicle that NASA hopes to send with astronauts to the moon by 2020—a "home on wheels," he calls it.

The new vehicle, which stands about 10 feet tall atop a bed of 12 wheels, features a pressurized cabin with a sink, toilet and even a collapsible exercise bike. The two seats fold into beds, and curtains roll down from the ceiling to separate the area into sleeping quarters. Two hatches on the back of the cabin exit directly into spacesuits dangling outside. These "suitports" will allow astronauts to dress and exit the vehicle in less than 15 minutes.

For the past two years, Garry, 34, has served as a crew geologist with NASA's Desert Research and Technology Studies (D-RATS) team, which tests spacesuits and vehicles in Arizona's craggy landscape. During the Apollo program, geologists' knowledge of the moon's surface helped engineers design the rovers, as well as the landing pads of the lunar module to guarantee a soft landing. And they pinpointed the terrain that would yield the most valuable data for geological surveys.

Clockwise from bottom left: Smithsonian geologist Brent Garry spent two weeks testing NASA's Lunar Electric Rover (LER) in rugged terrain in Arizona. The LERs will allow astronauts to extend their exploratory range to more than 300 miles. During the Apollo missions, the open-air lunar rovers were limited to about six miles.

In those missions, lunar exploration was limited to about six miles from the module—the distance the astronauts' oxygen supply would allow them to walk if their rovers broke down. The LERs are expected to extend the range to more than 300 miles. They will serve as lunar RV campers, so the astronauts won't have to return to the landing site each night.

This past September, Garry and astronaut Mike Gernhardt, who has gone to space four times aboard the space shuttle, spent two weeks living in the LER. Over the course of their Arizona field-test the pair logged some 85 miles and carried out the kinds of activities astronauts might conduct during a real mission: collecting geological samples, docking with other vehicles and, on the last day of practice, rescuing the crew of a broken-down LER.

"For me, it wasn't claustrophobic," says Garry. "It's a combination of camping and dorm room living—two guys having everything they need right around them." According to their Twitter feed, which had nearly 2,500 subscribers, the pair even enjoyed a movie night—"National Lampoon's *Vacation*."

"Gotta love the family truckster," Garry tweeted. **MEGAN GAMBINO**

NASA (3)

Visit Smithsonian.com/rover for a gallery of photographs of the rover adventure

THE OBJECT AT HAND

Indian Quilts

THE NATIONAL MUSEUM OF THE AMERICAN INDIAN

PATTERN RECOGNITION

A tribal craft gains a new audience

BY OWEN EDWARDS

AMERICAN INDIANS have long been recognized for their superb artistry and craftsmanship, creating woven rugs and blankets, beadwork, basketry, pottery, ceremonial clothing and headdresses prized by collectors. But the Smithsonian National Museum of the American Indian (NMAI) is home to one of the largest collections of a Native American art form that is hardly known at all: the quilt. Eighty-eight quilts—stitched by women from the Northern Plains tribes from the 1940s on—were acquired in 2007 from a spectacular collection put together by Florence Pulford.

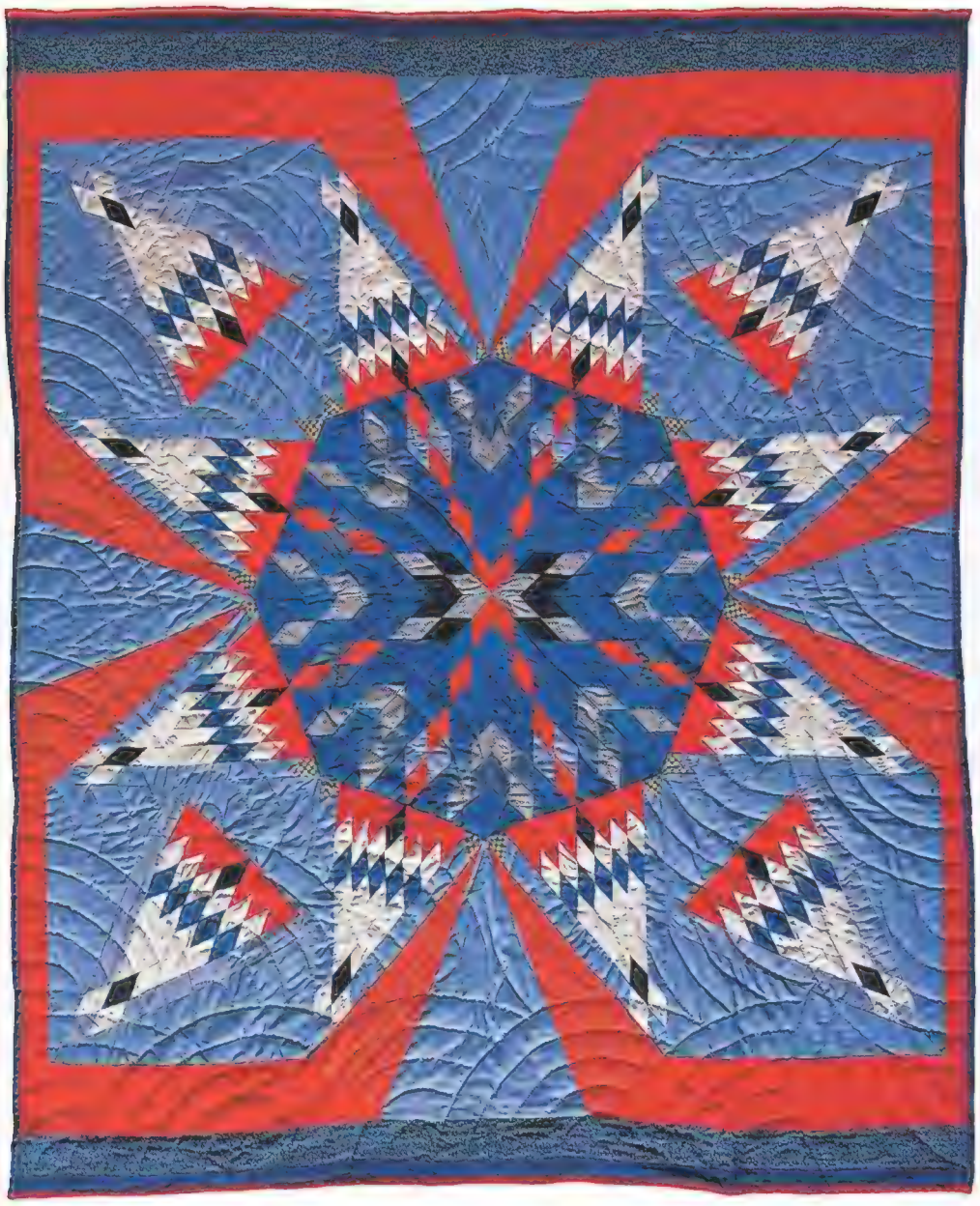
Pulford, a San Francisco Bay area homemaker, first got interested in quilts of the Plains tribes in the 1960s. According to NMAI curator Ann McMullen, these quilts—many bearing a central octagonal star—functioned as both ritual and practical replacements for Plains Indians buffalo robes. Bison hides had grown scarce as herds were hunted nearly to extinction in a campaign to subdue the Plains tribes during the late 1800s. Missionary wives taught quilting techniques to Indian women, who soon made the medium their own. Many of the patterns and motifs, McMullen says, "have a look very similar to [designs painted on] buffalo robes."

Some of the quilts, including a highly pictorial piece entitled *Red Bottom Tipi (Story of the Assiniboine)*, tell stories. Its dark blue stripe represents the Missouri River; figurative images depict the tepees of an Assiniboine camp and its inhabitants. But most of the Pulford quilts feature abstract geometric patterns. The museum bought 50 quilts from Pulford's daughters, Ann Wilson and Sarah Zweng, who also donated an additional 38.

Wilson recalls the genesis of the collection: "Since the 1940s, my father, a doctor, and my mother, and later the kids, went to a wonderful camp, a working ranch, Bar 717, in Trinity County in northern California," she says.

In the 1960s, Frank Arrow, a Gros Ventres Indian, came to Bar 717 from Montana to work with the horses and befriended Pulford and her family. "In 1968," says Wilson, "Frank's aunt invited my mother to come to the Fort Belknap Reservation in Montana." On that first visit, Pulford, who had a long-standing interest in Native American culture, was invited to a powwow and was given a quilt as a gift.

"My mother was stunned by the poverty on the reservation, as I was when I spent a summer [there] at the age of 21," Wilson says. "She saw that the quilts were made using feed sacks and other bits and pieces of material. She de-



See a selection of Plains Indians quilts at Smithsonian.com/quilts

Almira Buffalo Bone Jackson (above: in 1994), who created *Red Bottom Tipi* (left), once said that she would "dream the colors [of quilts] at night."

MICHAEL CRUMMETT; WALTER LARRIMORE / NMAI, SI

cided that these artists deserved better materials." Pulford began buying fabric in California and sending it to artisans at Fort Belknap, Fort Peck and other Montana reservations, sometimes even driving a horse trailer packed with quilting materials.

Pulford also began selling the quilts, using proceeds to buy additional fabric and turning over the remaining profit to the quilters. "This was the first time many of the women on the reservations had ever made any money," Wilson recalls.

It was during one of Pulford's early trips to Montana that she met quilter Almira Buffalo Bone Jackson, a member of the Red Bottom band of the Fort Peck Assiniboine. The two women became fast friends, staying close until Pulford's death at age 65 in 1989. "Besides their many visits," says Wilson, "my mother and Almira kept up a long, very intimate correspondence. They wrote about my mother's health, about Almira losing her husband, all sorts of things." Twenty-four of the quilts in the NMAI collection, including *Red Bottom Tipi*, were designed and sewn by Jackson, who died in 2004 at age 87.

"Almira was also a very talented artist in other ways," says McMullen. In *Morning Star Quilts*, Pulford's 1989 survey of quilting traditions among Native American women of the Northern Plains, she tells of a letter she got from Jackson that described a single month's output: a baby quilt, two boy's dance outfits, two girl's dresses, a ceremonial headdress and a resoled pair of moccasins. "Almira was also well known for other traditional skills," McMullen says. "Florence was especially intrigued by her methods for drying deer and antelope and vegetables for winter storage."

Which raises, it seems, an interesting question. In the world of fine art, how many gifted artists can count a working knowledge of curing meat among their talents?

OWEN EDWARDS *is a freelance writer and author of the book* Elegant Solutions.

Q&A

Photographer **MARTIN SCHOELLER**'s signature style is large, close-up portraits. He has photographed hundreds of celebrities and politicians, including Brad Pitt and Sarah Palin. Schoeller's work was recently on display at the National Portrait Gallery. He spoke with the magazine's Abby Callard.

WHO ARE YOUR INFLUENCES?

Bernd and Hilla Becher, the German couple who photographed industrial sites. They displayed photos of objects that performed the same function, such as water towers, and allowed people to compare and contrast the architecture. That always fascinated me, and informed my approach toward taking portraits—working with people from different walks of life, but using the same photographic technique to invite comparison.

WHAT ATTRACTS YOU TO EXTREME CLOSE-UPS?

It's probably a reflection of my personality. I feel comfortable being close to people. Some photographers don't want that level of intimacy. But I always felt that close-ups allow you to capture the most essential part about a person, without being distracted by their clothing or the physical background.

Also, many photographers are about making people look good to please their subjects and clients. But there's an underlying artifice to that approach; it's putting people on a pedestal and celebrating them. So these minimalist, extreme close-ups are much more honest and much more interesting to me.

Brad Pitt by Martin Schoeller.

WHO WAS THE FIRST PERSON YOU PHOTOGRAPHED IN THIS STYLE?

Nobody famous in the beginning. I made friends with these guys who owned a deli in New York City's Lower East Side, and they let me tape my shower curtain to their window to serve as a simple backdrop. I picked that street corner because of the nice daylight and just photographed people as they walked by me, [after] asking if I could take their picture.

WHO WAS YOUR FAVORITE SUBJECT?

It's hard to say. I once went to the White House to photograph Bill Clinton. Spending half an hour with the president of the United States was quite memorable. And quite stressful.

Read more of our conversation with Martin Schoeller at Smithsonian.com/schoeller

MARKIAN LOZOWCHUK; MARTIN SCHOELLER / CORBIS OUTLINE

What's Up

KILNS OF KYUSHU

Korean potters brought their glazed porcelain techniques to Kyushu in the 16th century, making Japan's southernmost island a pottery paradise. See their works (left: *Hizen Province Dish*, Edo period) at the Freer through January 9, 2011.

SISTERS FOR JUSTICE

For 300 years, nuns such as civil rights activist Dolores Bundy (left: c. 1970) have been a force for social change. An exhibit of photographs chronicling their efforts opens January 15 at the Ripley Center.

HAIL TO THE KING

The National Portrait Gallery celebrates Elvis' 75th birthday by focusing on idealized images of the King of Rock 'n' Roll (left: a painting by Ralph Wolfe Cowan, 1988) created after his death. Opens January 8.

WINDOW WATCHING

Through September, relive Christmases past at American History, where photographs and posters (left: 1927) celebrate the golden age of department store decorations, from the 1920s to the '60s.

BY ABBY CALLARD

A LITTLE BIT OFF THE TOP

Artist Yinka Shonibare specializes in headless sculptures. His *Headless Man Trying to Drink* (2005) alludes to the growing shortage of potable water worldwide. Come face to face with more of Shonibare's wonders at African Art through March 7, 2010.

SACKLER GALLERY, SI; OBLATE SISTERS OF PROVIDENCE; STEPHEN WHITE / NMAA, SI; NPG, SI; NMAH, SI

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THE TRUTH ABOUT LIONS

What drives the world's fiercest, most dominant wild animal? American biologist Craig Packer has spent three decades in Africa finding out

BY ABIGAIL TUCKER

Craig Packer was behind the wheel when we came across the massive cat slumped in the shade beneath a spiny tree. It was a dark-maned male, elaborately sprawled, as if it had fallen from a great height. Its sides heaved with shallow pants. Packer, a University of Minnesota ecologist and the world's leading lion expert, spun the wheel of the Land Rover and drove straight toward the animal. He pointed out the lion's scraped elbow and a nasty puncture wound on its side. Its mane was full of leaves. From a distance it looked like a deposed lord, grand and pitiable.

Since arriving in Tanzania's Serengeti National Park only that morning, I'd gaped at wildebeests on parade, dawdling baboons, gazelles rocketing by, oxpecker birds hitching rides atop Cape buffaloes, hippos with bubblegum-colored underbellies. The Serengeti usually dazzles first-time visitors, Packer had warned, making us giddy with an abundance of idyllic wildlife straight out of a Disney song-and-dance number.

The sublime brute only 15 feet away was my first wild *Panthera leo*. Male African lions can be ten feet long and weigh 400 pounds or more, and this one appeared to be pushing the limits of its species. I was glad to be inside a truck.

Packer, though, opened the door and hopped out. He snatched a stone and tossed it in the big male's direction.

Biologists long believed that lions band together (males in Kenya) to hunt prey. But Craig Packer and colleagues have found that's not the main reason the animals team up. (Photograph by Anup and Manoj Shah.)

The lion raised its head. Its handsome face was raked with claw marks.

Packer threw another stone. Unimpressed, the lion briefly turned its back, showing hindquarters as smooth as cast bronze. The beast yawned and, nestling its tremendous head on its paws, shifted its gaze to us for the first time. Its eyes were yellow and cold like new doubloons.

This was one of The Killers.

PACKER, 59, IS TALL, skinny and sharply angular, like a Serengeti thorn tree. He has spent a good chunk of his life at the park's Lion House, a concrete, fortress-like structure that includes an office, kitchen and three bedrooms. It is furnished with a faux leopard-skin couch and supplied only sporadically with electricity (the researchers turn it off during the day to save energy) and fresh water (elephants dug up the pipelines years ago). Packer has been running the Serengeti Lion Project for 31 of its 43 years. It is the most extensive carnivore study ever conducted.

He has persisted through cholera outbreaks, bouts of malaria and a 1994 canine distemper epidemic that killed off a third of the 300 lions he'd been following. He has collected lion blood, milk, feces and semen. He has honed his distressed wildebeest calf call to get his subjects' attention. He has learned to lob a defrosted ox heart full of medicine toward a hungry lion for a study of intestinal parasites. And he has braved the boredom of studying a creature that slumbers roughly 20 hours a day and has a face as inscrutable as a sphinx's.

Packer's reward has been an epic kind of science, a detailed chronicle of the lives and doings of generations of prides: the Plains Pride, the Lost Girls 2, the Transect Truants. Over the decades there have been plagues, births, invasions, feuds and dynasties. When the lions went to war, as they are inclined to do, he was their Homer.

"The scale of the lion study and Craig Packer's vigor as a scientist are pretty unparalleled," says Laurence Frank, of the University of California at Berkeley, who studies African lions and hyenas.

One of Packer's more sensational experiments took aim at a longstanding mystery. A male lion is the only cat with a mane; some scientists believed its function was to protect an animal's neck during fights. But because lions are the only social felines, Packer thought manes were more likely a message or a status symbol. He asked a Dutch toy company to craft four plush, life-size lions with light and dark manes of different lengths. He named them Lothario, Fabio, Romeo and Julio (as in Iglesias—this was the late 1990s). He attracted lions to the dolls using calls of scavenging hyenas. When they encountered the dummies, female lions almost invariably attempted to seduce the dark-maned ones, while males avoided them, preferring to attack the blonds, particularly those with shorter manes. (Stuffing still protrudes from the haunches of Fabio, a focal point of Lion House décor.)

Consulting their field data, Packer and his colleagues noticed that many males with short manes had suffered from injury or sickness. By contrast, dark-maned males tended to be older than the others, have higher testosterone levels, heal well after wounding and sire more surviving cubs—all of which made them more desirable mates and formidable foes. A mane, it seems, signals vital information about a male's fighting ability and health to mates and rivals. Newspapers across the globe picked up the finding. "Manely, lady lions look for dark color," one headline said. "Blonds have less fun in the lion world," read another.

Lately, Packer's research has taken on a new dimension. Long a dispassionate student of lion behavior and biology, he has become a champion for the species' survival. In Tanzania, home to as many as half of all the wild lions on earth, the population is in free fall, having dropped by half since the mid-1990s, to fewer than 10,000. Across Africa, up to one-quarter of the world's wild lions have vanished in little more than a decade.

The reason for the decline of the king of beasts can be summed up in one word: people. As more Tanzanians take up farming and ranching, they push farther into lion country. Now and then a lion kills a person or livestock; villagers—who once shot only nuisance lions—have started using poisons to wipe out whole prides. It is not a new problem, this interspecies competition for an increasingly scarce resource, but neither is it a simple one. Among other things, Packer and his students are studying how Tanzanians can change their animal husbandry and farming practices to ward off ravenous felines.

Scientists used to believe that prides—groups of a few to more than a dozen related females typically guarded by two or more males—were organized for hunting. Other aspects of the communal lifestyle—the animals' affinity for napping in giant piles and even nursing each others' young—were idealized as poignant examples of animal-kingdom altruism. But Packer and his collaborators have found that a pride isn't formed primarily for catching dinner or sharing parenting chores or cuddling. The lions' natural world—their behavior, their complex communities, their evolution—is shaped by one brutal, overarching force, what Packer calls "the dreadful enemy."

Other lions.

THE JUA KALI PRIDE lives far out on the Serengeti plains, where the land is the dull color of burlap, and termite mounds rise like small volcanoes. It's marginal habitat at best, without much shade or cover of any kind. (*Jua kali* is Swahili for "fierce sun.") Water holes look more like wallows, prey is scarce and, especially in the dry season, life is

MAP: GUILBERT GATES; PP. 28-29 ANUP AND MANOJ SHAH / WWW.SHAHIMAGES.COM

Packer (above: in the Serengeti) has run the world's most extensive lion study for 31 years. His team (below: Candida Mwingira with a lion named Fellow; far left: Ingela Jansson extracts a Land Rover from a ditch) observes dozens of prides and conducts elaborate field experiments. Using life-size dolls (left), he found females prefer males with dark manes.

ABIGAIL TUCKER / *SMITHSONIAN* (2); ROBERT CAPUTO / AURORA PHOTOS; ABIGAIL TUCKER / *SMITHSONIAN*

Battles between coalitions of males can be deadly. A trio known as The Killers attacked another group's male named C-Boy (above, far left and left; below: one of The Killers after the clash). "If you see a fight between males, slapping each other and roaring," Packer says, "how can you not be incredibly, viscerally moved by the power and energy?"

INGELA JANSSON (3); ABIGAIL TUCKER / *SMITHSONIAN*

not easy for the pride's four females and two resident males, Hildur and C-Boy.

Early one morning last August, Serengeti Lion Project researchers found Hildur, a Herculean male with a blond mane, limping around near a grassy ditch. He was sticking close to one of the pride's four females, whose newborn cubs were hidden in a nearby stand of reeds. He was roaring softly, possibly in an effort to contact his darker-maned coleader. But C-Boy, the researchers saw, had been cornered on the crest of a nearby hill by a fearsome trio of snarling males whom Packer and colleagues call The Killers.

The whole scene looked like a "takeover," a brief, devastating clash in which a coalition of males tries to seize control of a pride. Resident males may be mortally wounded in the fighting. If the invaders are victorious, they kill all the young cubs to bring the pride's females into heat again. Females sometimes die fighting to defend their cubs.

The researchers suspected that The Killers, who normally live near a river 12 miles away, had already dispatched two females from a different pride—thus The Killers earned their names.

C-Boy, surrounded, gave a strangled growl. The Killers fell on him, first two, then all three, slashing and biting as he swerved, their blows falling on his vulnerable hindquarters. The violence lasted less than a minute, but C-Boy's flanks looked as if they'd been flayed with whips. Apparently satisfied their opponent was crippled, The Killers turned and trotted off toward the marsh, almost in lock step, as Hildur's female companion crept toward a stand of reeds.

The whole scene looked like a "takeover," a brief, devastating clash in which a coalition of males tries to **seize control of a pride.**

None of the Jua Kali lions had been spotted since the fight, but we kept riding out to their territory to look for them. We didn't know if C-Boy had survived or if the cubs had made it. Finally, one afternoon we found JKM, the mother of the Jua Kali litter, lolling atop a termite mound as large and intricate as a pipe organ.

"Hey there, sweetness," Packer said to her as we pulled up. "Where are your cubs?"

JKM had her eye on a kongoni antelope a few miles away; unfortunately, it was watching her, too. She was also scanning the sky for vultures, perhaps in the hopes of scavenging a hyena kill. She stood up and ambled off into the hip-high grass. We could see dark circles around her nipples: she was still lactating. Against the odds, her cubs seemed to have survived.

Perhaps the apparent good fortune of the Jua Kali cubs was linked to another recent sighting, Packer speculated: a female from another nearby group, the Mukoma Hill pride, had been seen moving her own tiny bobble-headed cubs. The cubs were panting and mewling pitifully, clearly in distress; normally cubs stay in their den during the heat of the day. The Killers might have forsaken the Jua Kali females to take over the Mukoma Hill pride, which inhabits richer territory near river confluences to the north. The woodlands there, said Packer, were controlled by a series of "dinky little pairs of males": elderly Fellow and Jell-O; Porkie and Pie; and Wallace, the Mukoma Hill leader, whose partner, William, had recently died.

Packer recalled a similar pattern of invasion in the early 1980s by the Seven Samurai, a coalition of males, several with spectacular black manes, who had once brought down two adult, 1,000-pound Cape buffaloes and a calf in a single day. After storming the north they'd sired hundreds of cubs and ruled the savanna for a dozen years.

It took a while for Packer to tune into such dramas. When he first visited the Serengeti lions in 1974, he concluded that "lions were really boring." The laziest of all the cats, they were usually collapsed in a stupor, as if they had just run a marathon, when in reality they hadn't moved a muscle in 12 hours. Packer had been working under Jane Goodall in Tanzania's Gombe Stream National Park, observing baboons. He slept in a metal structure called The Cage to be closer to the animals. In 1978, when Packer's plan to study Japanese monkeys fell through, he and a fellow primatologist, Anne Pusey, to whom he was married at the time, volunteered to take over the Lion Project, begun 12 years earlier by the American naturalist George Schaller.

By the time Packer and Pusey installed themselves in the Lion House, scientists were well aware that lions are ambush predators with little stamina and that they gorge at a kill, each one downing up to 70 pounds in a sitting. (Lions eat, in addition to antelope and wildebeest, crocodiles, pythons, fur seals, baboons, hippopotamuses, porcupines and ostrich eggs.) Lion territories are quite large—15 square miles on the low end, ranging up to nearly 400—and are passed down through generations of females. Lions are vigorous when it comes to reproduction; Schaller observed one male mate 157 times in 55 hours.

Packer and Pusey set out not just to document lion behavior but to explain how it had evolved. "What we wanted to do was figure out why they did some of these things," Packer says. "Why did they raise their cubs together? Did they really hunt cooperatively?"

They kept tabs on two dozen prides in minute detail, photographing each animal and naming new cubs. They noted where the lions congregated, who was eating how much of what, who had mated, who was wounded, who survived and who died. They described interactions at kills. It was slow going, even after they put radio collars on several lions in 1984. Packer was always more troubled by the lions' sloth than their slavering jaws. Following prides at night—the animals are largely nocturnal—he sometimes thought he would go mad. "I read Tolstoy, I read Proust," he says. "All the Russians." Packer and Pusey wrote in one article

ABIGAIL TUCKER, *SMITHSONIAN's staff writer, has covered narwhals, salmon and the link between birds and horseshoe crabs.*

that "to the list of inert noble gases, including krypton, argon and neon, we would add lion."

Still, they began to see how prides functioned. Members of a large pride didn't get any more to eat than a lone hunter, mostly because a solitary animal got the proverbial lion's share. Yet lions band together without fail to confront and sometimes kill intruders. Larger groups thus monopolize the premier savanna real estate—usually around the confluence of rivers, where prey animals come to drink—while smaller prides are pushed to the margins.

Even the crèche, or communal nursery that is the social core of every pride, is shaped by violence, Packer says. He and Pusey realized this after scrutinizing groups of nursing mothers for countless hours. A lactating female nursed another's young rarely, usually after an unrelated cub sneaked onto her nipple. An alert lioness reserves her milk for her own offspring. In contrast to the widespread belief that crèches were maternal utopias, Packer and Pusey found that nursing mothers stick together chiefly for defense. During takeovers by outside males, solitary females lost litter after litter, while cooperating lionesses stood a better chance of protecting their cubs and fending off males, which can outweigh females by as much as 50 percent.

Surviving cubs go on to perpetuate the bloody cycle. Juvenile females often join forces with their mother's pride to defend the home turf. Males reared together typically form a coalition around age 2 or 3 and set out to conquer prides of their own. (Hard-living males rarely live past age 12; females can reach their late teens.) A lone male without a brother or cousin will often team up with another singleton; if he doesn't, he is doomed to an isolated life. A group of lions will count its neighbors' roars at night to estimate their numbers and determine if the time is right for an attack. The central insight of Packer's career is this: lions evolved to dominate the savanna, not to share it.

Even the crèche, or communal nursery that is the social core of every pride, **is shaped by violence**, Packer and Pusey realized.

AS WE CROSSED THE PLAINS one morning, the Land Rover—broken speedometer, no seat belts, cracked side mirrors, a fire extinguisher and a roll of toilet paper on the dashboard—creaked like an aged vessel in high seas. We plowed through oceans of grasses, mostly brown but also mint green, salmon pink and, in the distance, lavender; the lions we hunted were a liquid flicker, a current within a current. The landscape on this day did not look inviting. Sections of the giant sky were shaded with rain. Zebra jaws and picked-clean impala skulls littered the ground. Bones don't last long here, though; hyenas eat them.

Packer and a research assistant, Ingela Jansson, were listening through headphones for the ping-ping-ping radio signal of collared lions. Jansson, driving, spotted a pride on the other side of a dry gully: six or seven lions sitting slack-jawed in the shade. Neither she nor Packer recognized them. Jansson had a feeling they might be a new group. "They may never have seen a car before," she whispered.

The sides of the ditch looked unpromising, but Packer and Jansson couldn't resist. Jansson found what seemed to be a decent crossing spot, by Serengeti standards, and angled the truck down. We roared across the bed and began churning up the other side. Packer, who is originally from Texas, let out a whoop of triumph just before we lurched to a halt and began to slide helplessly backward.

We came to rest at the bottom, snarled in reeds, with only three wheels on the ground, wedged between the riverbanks as tightly as a filling in a dental cavity. The ditch was 15 feet deep, so we could no longer see the pride, but as we'd slipped downward, a row of black-tipped ears had cocked inquisitively in our direction.

Jansson stepped out of the truck, long blond ponytail whipping around, dug at the wheels with a shovel and spade, and then hacked down reeds with a panga, or straight-blade machete. Earlier I had asked what kind of anti-lion gear the researchers carried. "An umbrella," Jansson said. Apparently, lions don't like umbrellas, particularly if they're painted with large pairs of eyes.

Packer is not afraid of lions, especially Serengeti lions, which he says have few encounters with people or livestock and have plenty of other things to eat. To figure out if a sedated lion is truly down for the count, he'll get out of the truck to tickle its ear. He says he once ditched a mired Land Rover within ten feet of a big pride and marched in the opposite direction, his 3-year-old daughter on his shoulders, singing nursery school songs all the way back to the Lion House. (His daughter, Catherine, 25, is a student at the Johns Hopkins Bloomberg School of Public Health. Packer never tried such a stunt with son Jonathan, now 22, although Jonathan was once bitten by a baboon. Packer and Pusey divorced in 1997; she returned to studying chimpanzees.)

Not being handy with a panga, I was sent a short distance down the riverbed to gather stones to wedge under the wheels. Packer's nonchalance was not contagious. I could not decide whether I should creep or sprint. Every time I glanced at the grassy riverbanks above I was sure that I would find myself the object of some blond monster's greedy regard. As I bent to claw stones out of the ground, I knew suddenly, with complete, visceral certainty, why Tanzanian villagers might rather be rid of these animals.

I'd already taken stock of their carving-knife incisors and Cleopatra eyes, observed their low, rolling, hoodlum swaggers, heard their idling growls and nocturnal bellows. If you live in a mud hut protected by a bramble fence, if your cows are your bank account and your 7-year-old son is a shepherd who sleeps in the paddock with his goats, wouldn't you want to eliminate every last lion on earth?

"People hate lions," Packer had told me. "The people who live with them, anyway."

Lions work together to hunt (above: two females chase wildebeest). But especially for females (far left: two adults; left: two females greet each other as a cub nurses), communal living is a form of defense. Male invaders will kill a pride's cubs, and females that band together have a better chance of saving offspring (below: a female with young cubs).

ANUP AND MANOJ SHAH / WWW.SHAHIMAGES.COM (3); ABIGAIL TUCKER / *SMITHSONIAN*

After more than an hour of reed-whacking, stone-wedging and wrestling with mud ladders placed under the tires to provide traction, the vehicle finally surged onto the far side of the ditch. Incredibly, the lions remained precisely where we'd seen them last: sitting with Zen-like equanimity on their little doily of shade.

Jansson looked through binoculars, taking note of their whisker patterns and a discolored iris here and a missing tooth there. She determined this was the seldom-seen Turner Springs pride. Some of the sun-dazed lions had bloodstains on their milky chins. Though they hadn't displayed the slightest interest in us, I uttered a silent prayer to go home.

"Let's go closer," Packer said.

THE FIRST TRUE LION probably padded over the earth about 600,000 years ago, and its descendants eventually ruled a greater range than any other wild land mammal. They penetrated all of Africa, except for the deepest rain forests of the Congo Basin and driest parts of the Sahara, and every continent save Australia and Antarctica. There were lions in Great Britain, Russia and Peru; they were plentiful in Alaska and the habitat known today as downtown Los Angeles.

The artist who painted lions in Chauvet cave 32,000 years ago, Packer says, was "viewing them in a very cool and detached way. This was somebody who was studying lions."

In the Grotte Chauvet, the cave in France whose 32,000-year-old paintings are considered among the oldest art in the world, there are more than 70 renderings of lions. Sketched in charcoal and ocher, these European cave lions—maneless and, according to fossil evidence, 25 percent bigger than African lions—prance alongside other now-extinct creatures: mammoths, Irish elk, woolly rhino. Some lions, drawn in the deepest part of the cave, are oddly colored and abstract, with hooves instead of paws; archaeologists believe these may be shamans.

The French government invited Packer to tour the cave in 1999. "It was one of the most profound experiences of my life," Packer says. But the dream-like quality of the images wasn't what excited him; it was their zoological accuracy. By the light of a miner's lamp, he discerned pairs, lions moving in large groups and even submissive behavior, depicted down to the tilt of the subordinate's ears. The artist, Packer says, "doesn't exaggerate their teeth, he doesn't make them seem more formidable than I would. This was somebody who was viewing them in a very cool and detached way. This was somebody who was studying lions."

The lions' decline began about 12,000 years ago. Prehistoric human beings, with their improving hunting technologies, probably competed with lions for prey, and lion subspecies in Europe and the Americas went extinct. Other subspecies were common in India and Africa until the 1800s, when European colonists began killing lions on safaris and clearing the land. In 1920, a hunter shot the last known member of the North African subspecies in Morocco. Today, the only wild lions outside Africa belong to a small group of fewer than 400 Asiatic lions in the Gir Forest of India.

Lions persist in a handful of countries across southeastern Africa, including Botswana, South Africa and Kenya, but Tanzania's population is by far the largest. Though devastatingly poor, the nation is a reasonably stable democracy with huge tracts of protected land.

Serengeti National Park—at 5,700 square miles, about the size of Connecticut—is perhaps the world's greatest lion sanctuary, with some 3,000 lions. In Packer's study area, comprising the territories of 23 prides near the park's center, the number of lions is stable or even rising. But the Serengeti is the exception.

Part of the blame for Tanzania's crashing lion population belongs to the trophy-hunting industry: the government allows the harvest of some 240 wild lions a year from game reserves and other unprotected areas, the highest take in Africa. Safaris charge a trophy fee of as little as $6,000 for a lion; animals are shot while feasting on baits, and many of the coveted "trophy males" have peach fuzz manes and haven't even left their mother's pride yet. The use of lion parts in folk medicines is another concern; as wild tigers disappear from Asia, scientists have noticed increasing demand for leonine substitutes.

The central issue, though, is the growing human population. Tanzania has three times as many residents now—some 42 million—as when Packer began working there. The country has lost more than 37 percent of its woodlands since 1990. Disease has spread from village animals to the lions' prey animals, and, in the case of the 1994 distemper outbreak that started in domestic dogs, to the lions themselves. The lions' prey animals are also popular in the burgeoning—and illicit—market for bush meat.

And then there is the understandable ill will that people bear lions, which loiter on front porches, bust through thatched roofs, snatch cattle, rip children from their mother's arms, haul the elderly out of bed and seize women on the way to latrines. In the 1990s, as Tanzanians plowed large swaths of lion territory into fields, lion attacks on people and livestock rose dramatically.

Bernard Kissui, a Tanzanian lion scientist with the African Wildlife Foundation and one of Packer's former

FRENCH MINISTRY OF CULTURE AND COMMUNICATION, REGIONAL DIRECTION FOR CULTURAL AFFAIRS-RHÔNE-ALPES, REGIONAL DEPARTMENT OF ARCHAEOLOGY

They are perhaps the world's most notorious wild lions. Their ancestors were vilified more than 100 years ago as the man-eaters of Tsavo, a vast swath of Kenya savanna around the Tsavo River.

Bruce Patterson has spent the past decade studying lions in the Tsavo region, and for several nights I went into the bush with him and a team of volunteers, hoping to glimpse one of the beasts.

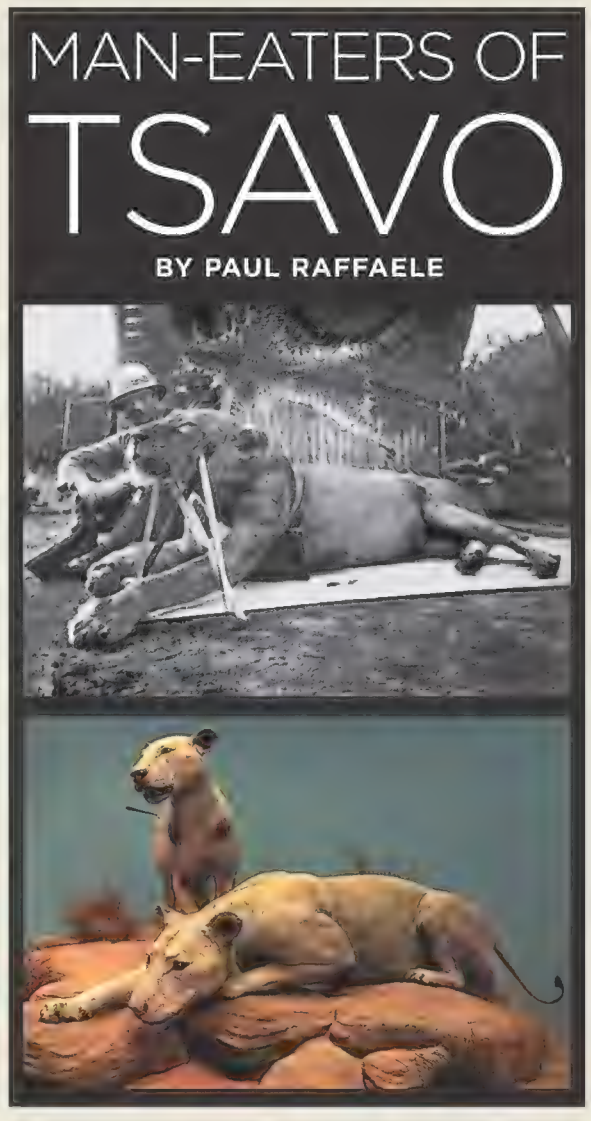
We headed out in a truck along narrow red dirt trails through thick scrub. A spotlight threw a slender beam through the darkness. Kudus, huge antelopes with curved horns, skittered away. A herd of elephants passed, their massive bodies silhouetted in the dark.

One evening just after midnight, we came upon three lions resting by a water hole. Patterson identified them as a 4-year-old male he has named Dickens and two unnamed females. The three lions rose and Dickens led the two females into the scrub.

On such forays Patterson has come to better understand the Tsavo lions. Their prides, with up to 10 females and just 1 male, are smaller than Serengeti lion prides, which have up to 20 females and 2 or more males. In Tsavo, male lions do not share power with other males.

Tsavo males look different as well. The most vigorous Serengeti males sport large dark manes, while in Tsavo they have short, thin manes or none at all. "It's all about water," Patterson says. Tsavo is hotter and drier than the Serengeti, and a male with a heavy mane "would squander his daily water allowance simply panting under a bush, with none to spare for patrolling his territory, hunting or finding mates."

But it's the lions' reputation for preying on people that attracts attention. "For centuries Arab slave caravans passed through Tsavo on the way to Mombasa," said Samuel Kasiki, deputy director of Biodiversity Research and Monitoring with the Kenya Wildlife Service. "The death rate was high; it was a bad area for sleeping sickness from the tsetse fly; and the bodies of slaves who died or were dying were left where they dropped. So the lions may have gotten their taste for human flesh by eating the corpses."



In 1898, two lions attacked dozens of people before Lt. Col. Patterson (top) killed the cats, now at the Field Museum (above).

In 1898, two lions terrorized crews constructing a railroad bridge over the Tsavo River, killing—according to some estimates—135 people. "Hundreds of men fell victims to these savage creatures, whose very jaws were steeped in blood," wrote a worker on the railway, a project of the British colonial government. "Bones, flesh, skin and blood, they devoured all, and left not a trace behind them."

Lt. Col. John Henry Patterson shot the lions (a 1996 movie, *The Ghost and the Darkness*, dramatized the story) and sold their bodies for $5,000 to the Field Museum in Chicago, where, stuffed, they greet visitors to this day.

Bruce Patterson (no relation to John), a zoologist with the museum, continues to study those animals. Chemical tests of hair samples recently confirmed that the lions had eaten human flesh in the months before they were killed. Patterson and his colleagues estimate that one lion ate 10 people, and the other about 24—far fewer than the legendary 135 victims, but still horrifying.

When I arrived in Nairobi, word reached the capital that a lion had just killed a woman at Tsavo. A cattle herder had been devoured weeks earlier. "That's not unusual at Tsavo," Kasiki said.

Still, today's Tsavo lions are not innately more bloodthirsty than other lions, Patterson says; they attack people for the same reason their forebears did a century ago: "our encroachment into what was once the territory of lions." Injured lions are especially dangerous. One of the original man-eaters had severe dental disease that would have made him a poor hunter, Patterson found. Such lions may learn to attack people rather than game, he says, "because we are slower, weaker and more defenseless."

PAUL RAFFAELE's *book* Among the Great Apes *will be published in February.*

THE FIELD MUSEUM, #Z93658; THE FIELD MUSEUM, #GN87713_7C

graduate students, met Packer and me in Manyara, a bustling district southeast of Serengeti National Park. Kissui said five lions nearby had recently died after eating a giraffe carcass laced with tick poison.

"Is that one of your study prides?" Packer asked.

"I'm suspecting so," said Kissui, who works in the nearby Tangire National Park. He wasn't sure who had poisoned the lions or what had provoked the killings. A month earlier, lions had killed three boys, ages 4, 10 and 14, herding livestock, but that was in a village 40 miles away.

"Africa is not Africa without lions," Kissui told me, but "human needs precede the wildlife's. As the number of people increases, we take the land that would have been available to the wildlife and use it for ourselves. Africa has one billion people now. Think about what that one billion implies in terms of the future of lions. We are heading into a very complicated world."

Young men from pastoral tribes no longer care to tend cattle, Kissui says. "They want to go to Arusha and drive a car." So their little brothers are sent into the bush instead. Packer and his students have shown that lions tend to target livestock tended by boys during the dry season.

Packer, Kissui and other scientists are experimenting with ways to keep people and lions safe. Special funds repay herders for lost livestock—if no lion is harmed. They have suggested that corn farmers in southern Tanzania hang chili peppers in their fields, which repel the bush pigs that lions relish, or dig ditches around their crops to keep the pigs out. And Packer is assisting Kissui with a program that subsidizes herdsmen who want to replace their bramble-enclosed paddocks with fences of metal and wood.

"Why am I doing this? I feel like I owe this country something," Packer says. "So 100 years from now **there will still be lions in Tanzania.**"

In Manyara we visited Sairey LoBoye, a study participant. He was attired in stunning blue blankets and talking on his cellphone. LoBoye is a member of the Maasai tribe, whose traditional culture centers on safeguarding cattle: teenagers spear lions as a rite of passage. LoBoye said he simply wanted lions to leave him alone. Two years ago lions devoured one of his precious bulls, but since installing a modern fence, he hasn't had any problems and his cattle and children are safer. "Now I can sleep at night," he said.

Packer argues that the Serengeti, like some South African parks, should be surrounded by an electric, elephant-proof, heavily patrolled fence that would encompass the whole wildebeest migration route and keep the lions in and the poachers out. The idea has little support, in part because of the tens of millions of dollars it would cost to erect the barrier.

Packer and Susan James, a former business executive he married in 1999, founded a nonprofit organization, Savannas Forever, which is based in Arusha and monitors the quality of rural village life. They've hired Tanzanians to measure how development aid affects such variables as children's height and weight; they'll spread the word about which approaches are most effective so other programs can replicate them. The hope is that improving the standard of living will bolster local conservation efforts and give lions a better shot at survival.

As hard as it is for Packer to imagine the prides he has followed for so long ending in oblivion in the next few decades, he says that's the most likely outcome: "Why am I doing this? I feel like I owe this country something. So 100 years from now there will still be lions in Tanzania."

BEFORE I LEFT THE SERENGETI, Packer took me to see a fig tree that had served for decades as a lion scratching post. As we drove across the savanna, graduate student Alexandra Swanson fiddled with a radio scanner, searching for signals from radio-collared lions, but we heard only static.

The tree was on a kopje, one of the isolated piles of rocks in the grasslands that are popular lion haunts. Packer wanted to climb up for a better look. Lulled, perhaps, by the silence on the scanner, I agreed to accompany him.

We'd climbed most of the way up the pile when Packer snapped his fingers and motioned for me to crouch down. The world seemed to zoom in and out, as if I was looking through a camera's telephoto lens, and I imagined hot lion breath on my neck.

Packer, at the top of the kopje, was waving me closer.

"Do you see that lion?" he whispered. "No," I whispered back.

He pointed at a shadowy crevice beneath the fig tree, about 20 feet away. "You don't see that lion?"

"There is no lion," I said, as if my words could make it so.

Then I saw one tiny, yellow, heart-shaped face, and then another, bright as dandelions against the gray rocks. Golden eyes blinked at us.

Mothers often leave their cubs for long stretches to hunt, but this was only the second time in Packer's long career he'd found an unattended den. Young cubs are almost completely helpless and can starve or be eaten by hyenas if left alone too long. One of the cubs was clearly horrified by our presence and shrank behind its braver sibling, which arranged itself in a princely fashion on the rocks to enjoy these strange, spindly, cringing creatures. The other cub seemed to forget its fear and bit the bold one's ear. They were perfect fleecy things. Their coats had a faint tiled pattern that would fade away with time.

That night we camped beside the kopje, Swanson and I in the bed of the Land Rover and Packer in a flimsy tent. It wasn't the most restful evening of my life: in the lion's last great stronghold, we were outside a mother's very den.

I kept thinking of the cubs in the crevice. Their mother might return while we slept. I almost hoped she would.

Read about lions' deadly attacks at Smithsonian.com/lions

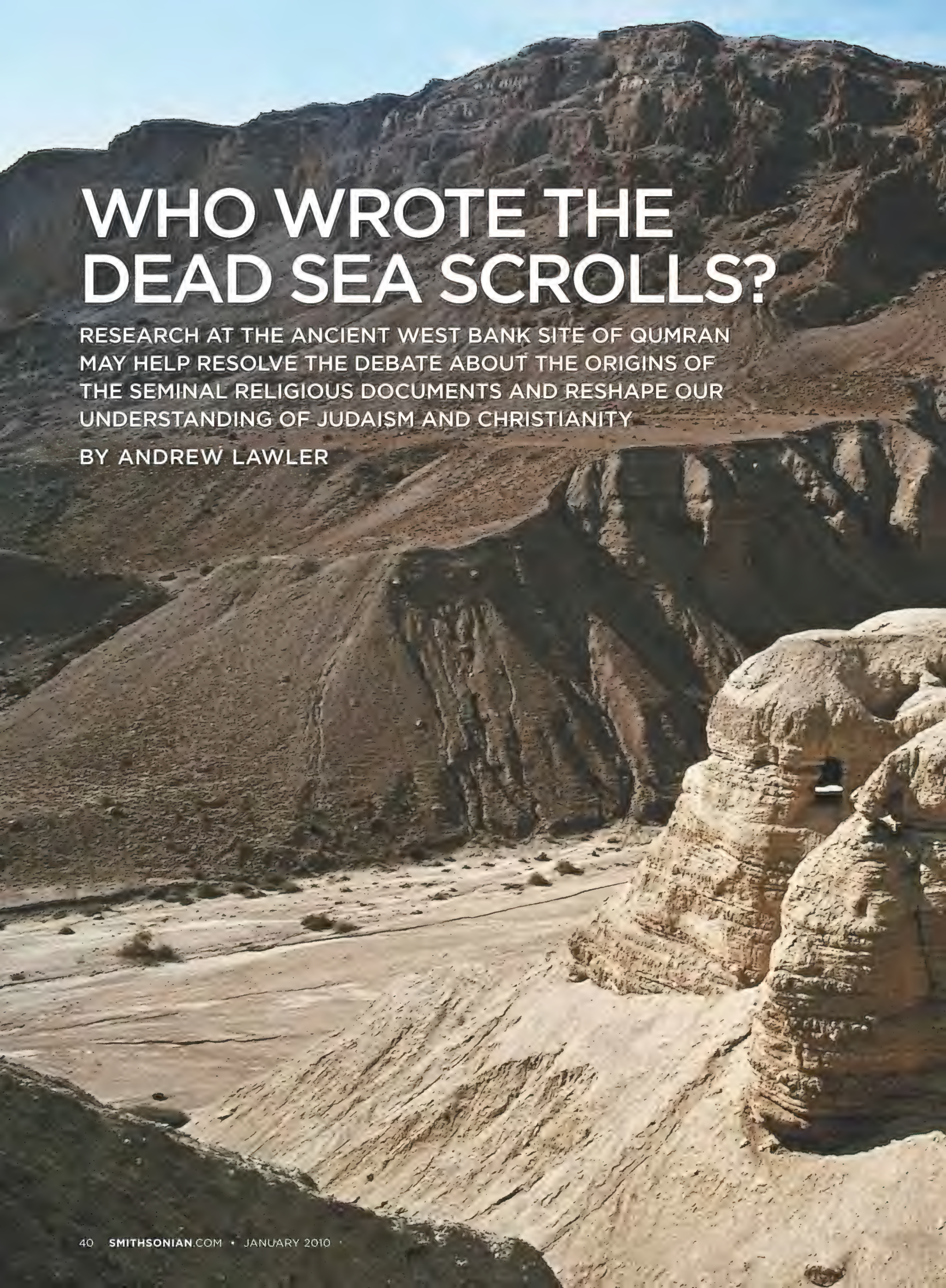
Sairey LoBoye (far left; above: his children) belongs to the Maasai tribe, which raises cattle (left). If a lion kills a person or livestock, tribespeople may retaliate by killing many lions. Packer promotes simple methods for protecting cattle and children. LoBoye now keeps animals behind a fence of metal and wood instead of brambles: "I can sleep at night."

ABIGAIL TUCKER / *SMITHSONIAN* (2); DAVID W. HAMILTON / GETTY IMAGES; ANUP AND MANOJ SHAH / WWW.SHAHIMAGES.COM

WHO WROTE THE DEAD SEA SCROLLS?

RESEARCH AT THE ANCIENT WEST BANK SITE OF QUMRAN MAY HELP RESOLVE THE DEBATE ABOUT THE ORIGINS OF THE SEMINAL RELIGIOUS DOCUMENTS AND RESHAPE OUR UNDERSTANDING OF JUDAISM AND CHRISTIANITY

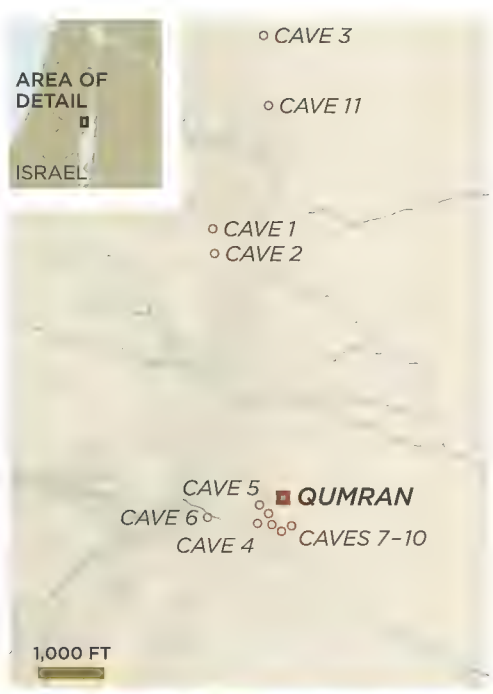
BY ANDREW LAWLER



The Dead Sea Scrolls remained hidden in caves for nearly 2,000 years, until they were discovered, in 1947, by a shepherd. Among the texts are nearly every book in the Old Testament.

ISRAELI ARCHAEOLOGIST YUVAL PELEG HALTS HIS JEEP WHERE THE JAGGED Judean hills peter out into a jumble of boulders. Before us, across the flat-calm Dead Sea, the sun rises over the mountains of Jordan. The heat on this spring morning is already intense. There are no trees or grass, just a few crumbling stone walls. It is a scene of silent desolation—until, that is, tourists in hats and visors pour out of shiny buses.

They have come to this harsh and remote site in the West Bank, known as Qumran, because this is where the most important religious texts in the Western world were found in 1947. The Dead Sea Scrolls—comprising more than 800 documents made of animal skin, papyrus and even forged copper—deepened our understanding of the Bible and shed light on the histories of Judaism and Christianity. Among the texts are parts of every book of the Hebrew canon—what Christians call the Old Testament—except the book of Esther. The scrolls also contain a collection of previously unknown hymns, prayers, commentaries, mystical formulas and the earliest version of the Ten Commandments. Most were written between 200 B.C. and the period prior to the failed Jewish revolt to gain political and religious independence from Rome that lasted from A.D. 66 to 70—predating by 8 to 11 centuries the oldest previously known Hebrew text of the Jewish Bible.



Tour guides shepherding the tourists through the modest desert ruins speak of the scrolls' origin, a narrative that has been repeated almost since they were discovered more than 60 years ago. Qumran, the guides say, was home to a community of Jewish ascetics called the Essenes, who devoted their lives to writing and preserving sacred texts. They were hard at work by the time Jesus began preaching; ultimately they stored the scrolls in 11 caves before Romans destroyed their settlement in A.D. 68.

But hearing the dramatic recitation, Peleg, 40, rolls his eyes. "There is no connection to the Essenes at this site," he tells me as a hawk circles above in the warming air. He says the scrolls had nothing to do with the settlement. Evidence for a religious community here, he says, is unconvincing. He believes, rather, that Jews fleeing the Roman rampage hurriedly stuffed the documents into the Qumran caves for safekeeping. After digging at the site for ten years, he also believes that Qumran was originally a fort designed to protect a growing Jewish population from threats to the east. Later, it was converted into a pottery factory to serve nearby towns like Jericho, he says.

Other scholars describe Qumran variously as a manor

AHIKAM SERI; MAP: GUILBERT GATES; AHIKAM SERI; P. 43 ISRAELIMAGES / ALAMY; PP. 40-41 ERICH LESSING / ART RESOURCE, NY

house, a perfume manufacturing center and even a tannery. Despite decades of excavations and careful analysis, there is no consensus about who lived there—and, consequently, no consensus about who actually wrote the Dead Sea Scrolls.

"It's an enigmatic and confusing site," acknowledges Risa Levitt Kohn, who in 2007 curated an exhibit about the Dead Sea Scrolls in San Diego. She says the sheer breadth and age of the writings—during a period that intersects with the life of Jesus and the destruction of the Second Jewish Temple in Jerusalem—make Qumran "a powder keg" among normally placid scholars. Qumran has prompted bitter feuds and even a recent criminal investigation.

Nobody doubts the scrolls' authenticity, but the question of authorship has implications for understanding the history of both Judaism and Christianity. In 164 B.C., a group of Jewish dissidents, the Maccabees, overthrew the Seleucid Empire that then ruled Judea. The Maccabees established an independent kingdom and, in so doing, tossed out the priestly class that had controlled the temple in Jerusalem since the time of King Solomon. The turmoil led to the emergence of several rival sects, each one vying for dominance. If the Qumran texts were written by one such sect, the scrolls "help us to understand the forces that operated after the Maccabean Revolt and how various Jewish groups reacted to those forces," says New York University professor of Jewish and Hebraic studies Lawrence Schiffman in his book *Reclaiming the Dead Sea Scrolls*. "While some sects were accommodating themselves to the new order in various ways, the Dead Sea group decided it had to leave Jerusalem altogether in order to continue its unique way of life."

And if Qumran indeed housed religious ascetics who turned their backs on what they saw as Jerusalem's deca-

The thousands of tourists (opposite bottom) who flock to Qumran each year are told that the site was once home to a Jewish sect called the Essenes, who devoted their lives to writing and preserving sacred texts. Israeli archaeologist Yuval Peleg (opposite top) disagrees, and says the settlement (above) was originally a small fort that was later converted into a pottery factory to serve nearby towns.

dence, then the Essenes may well represent a previously unknown link between Judaism and Christianity. "John the Baptizer, Jesus' teacher, probably learned from the Qumran Essenes—though he was no Essene," says James Charlesworth, a scrolls scholar at Princeton Theological Seminary. Charlesworth adds that the scrolls "disclose the context of Jesus' life and message." Moreover, the beliefs and practices of the Qumran Essenes as described in the scrolls—vows of poverty, baptismal rituals and communal meals—mirror those of early Christians. As such, some see Qumran as the first Christian monastery, the cradle of an emerging faith.

But Peleg and others discount Qumran's role in the history of the two religions. Norman Golb, a University of Chicago professor of Jewish history (and an academic rival of Schiffman), believes that once Galilee fell during the Jewish revolt, Jerusalem's citizens knew that the conquest of their city was inevitable; they thus gathered up texts from libraries and personal collections and hid them throughout the Judean wilderness, including in the caves near the Dead Sea. If that's the case, then Qumran was likely a secular—not a spiritual—site, and the scrolls reflect not just the views of a single dissident group of proto-Christians, but a wider tapestry of Jewish thought. "Further determination of the individual concepts and practices described in the scrolls can be best achieved not by forcing them to fit into the single sectarian bed of Essenism," Golb argued in the journal *Biblical Archaeologist*.

One assumption that is now widely accepted is that the majority of the scrolls did not originate at Qumran. The earliest texts date to 300 B.C.—a century before Qumran even existed as a settlement—and the latest to a generation before the Romans destroyed the site in A.D. 68. A few scrolls are written in sophisticated Greek rather than a prosaic form of Aramaic or Hebrew that would be expected from a community of ascetics in the Judean desert. And why would such a community keep a list, etched in rare copper, of precious treasures of gold and silver—possibly from the Second Temple in Jerusalem—that had been secreted away? Nor does the word "Essene" appear in any of the scrolls.

Of course none of this rules out the possibility that Qumran was a religious community of scribes. Some scholars are not troubled that the Essenes are not explicitly mentioned in the scrolls, saying that the term for the sect is a foreign label. Schiffman believes they were a splinter group of priests known as the Sadducees. The notion that the scrolls are "a balanced collection of general Jewish texts" must be rejected, he writes in *Biblical Archaeologist*. "There is now too much evidence that the community that collected those scrolls emerged out of sectarian conflict and that [this] conflict sustained it throughout its existence." Ultimately, however, the question of who wrote the scrolls is more likely to be resolved by archaeologists scrutinizing Qumran's every physical remnant than by scholars poring over the texts.

THE DEAD SEA SCROLLS amazed scholars with their remarkable similarity to later versions. But there were also subtle differences. For instance, one scroll expands on the book of Genesis: in Chapter 12, when Abraham's wife Sarah is taken by the Pharaoh, the scroll depicts Sarah's beauty, describing her legs, face and hair. And in Chapter 13, when God commands Abraham to walk "through the land in the length," the scroll adds a first-person account by Abraham of his journey. The Jewish Bible, as accepted today, was the product of a lengthy evolution; the scrolls offered important new insights into the process by which the text was edited during its formation.

The scrolls also set forth a series of detailed regulations that challenge the religious laws practiced by the priests in

THE ISRAEL MUSEUM, JERUSALEM; PP. 44-45 ISRAEL ANTIQUITIES AUTHORITY

Archaeologists scrutinize every detail of Qumran's ruins (above) for clues as to who actually lived there. Some scholars point to one scroll, "The Rule of the Community" (opposite top), as evidence that a strict religious sect resided at Qumran. Others say the discovery of some 1,200 coins (opposite bottom) suggests that Qumran was actually the site of a lucrative perfume business.

Jerusalem and espoused by other Jewish sects such as the Pharisees. Consequently, scholars of Judaism consider the scrolls to be a missing link between the period when religious laws were passed down orally and the Rabbinic era, beginning circa A.D. 200, when they were systematically recorded—eventually leading to the legal commentaries that became the Talmud.

For Christians as well, the scrolls are a source of profound insight. Jesus is not mentioned in the texts, but as Florida International University scholar Erik Larson has noted, the scrolls have "helped us understand better in what ways Jesus' messages represented ideas that were current in the Judaism of his time and in what ways [they were] distinctive." One scroll, for example, mentions a messianic figure who is called both the "Son of God" and the "Son of the Most High." Many theologians had speculated that the phrase "Son of God" was adopted by early Christians after Jesus' crucifixion, in contrast to the pagan worship of the Roman emperors. But the appearance of the phrase in the scrolls indicates the term was already in use when Jesus was preaching his gospel.

AHIKAM SERI

WHOEVER HID THE SCROLLS from the Romans did a superb job. The texts at Qumran remained undiscovered for nearly two millennia. A few 19th-century European travelers examined what they assumed was an ancient fortress of no particular interest. Then, near it in 1947, a goat strayed into a cave, a Bedouin shepherd flung a stone into the dark cavern and the resulting clink against a pot prompted him to investigate. He emerged with the first of what would be about 15,000 fragments of some 850 scrolls secreted in the many caves that pock the cliffs rising above the Dead Sea.

The 1948 Arab-Israeli War prevented a close examination of the Qumran ruins. But after a fragile peace set in, a bearded and bespectacled Dominican monk named Roland de Vaux started excavations of the site and nearby caves in 1951. His findings of spacious rooms, ritual baths and the remains of gardens stunned scholars and the public alike. He also unearthed scores of cylindrical jars, hundreds of ceramic plates and three inkwells in or near a room that he concluded had once contained high tables used by scribes.

Shortly before de Vaux began his work, a Polish scholar named Jozef Milik completed a translation of one scroll, "The Rule of the Community," which lays out a set of strict regulations reminiscent of those followed by a sect of Jews mentioned in A.D. 77 by the Roman historian Pliny the Elder. He called the sect members Essenes, and wrote that they lived along the western shore of the Dead Sea "without women and renouncing love entirely, without money, and having for company only the palm trees." Pliny's contemporary, historian Flavius Josephus, also mentions the Essenes in his account of the Jewish War: "Whereas these men shun the pleasures as vice, they consider self-control

ANDREW LAWLER, *who lives in rural Maine, wrote about the Iranian city of Isfahan in the April 2009 issue of* SMITHSONIAN.

Above from left: archaeologist Roland de Vaux; rival scholars Lawrence Schiffman and Norman Golb; Raphael Golb, arrested for harassing critics of his father's theories.

and not succumbing to the passions virtue." Based upon these references, de Vaux concluded that Qumran was an Essene community, complete with a refectory and a scriptorium—medieval terms for the places where monks dined and copied manuscripts.

Though he died in 1971 before publishing a comprehensive report, de Vaux's picture of Qumran as a religious community was widely accepted among his academic colleagues. (Much of his Qumran material remains locked up in private collections in Jerusalem and Paris, out of reach of most scholars.) By the 1980s, however, new data from other sites began casting doubt on his theory. "The old views have been outstripped by more recent discoveries," says Golb.

For example, we now know that Qumran was not the remote place it is today. Two millennia ago, there was a thriving commercial trade in the region; numerous settlements dotted the shore, while ships plied the sea. Springs and runoff from the steep hills were carefully engineered to provide water for drinking and agriculture, and date palms and plants produced valuable resins used in perfume. And while the heavily salinated sea lacked fish, it provided salt and bitumen, the substance used in ancient times to seal boats and mortar bricks. Far from being a lonely and distant community of religious nonconformists, Qumran was a valuable piece of real estate—a day's donkey ride to Jerusalem, a two-hour walk to Jericho and a stroll to docks and settlements along the sea.

And a closer look at de Vaux's Qumran findings raises questions about his picture of a community that disdained luxuries and even money. He uncovered more than 1,200 coins—nearly half of which were silver—as well as evidence of hewn stone columns, glass vessels, glass beads and other fine goods. Some of it likely comes from later Roman occupation, but Belgian husband-and-wife archaeologists Robert Donceel and Pauline Donceel-Voute believe that most of the accumulated wealth indicates that Qumran was an estate—perhaps owned by a rich Jerusalem patrician—that produced perfume. The massive fortified tower, they say, was a common feature of villas during a conflict-prone era in Judea. And they note that Jericho and Ein Gedi (a settlement nearly 20 miles south of Qumran) were known throughout the Roman world as producers of the balsam resin used as a perfume base. In a cave near Qumran, Israeli researchers found in 1988 a small round bottle that, according to lab analyses, contained the remains of resin. De Vaux claimed that similar bottles found at Qumran were inkwells. But they might just as well have been vials of perfume.

Other theories abound. Some think Qumran was a modest trading center. British archaeologist David Stacey believes it was a tannery and that the jars found by de Vaux were for the collection of urine necessary for scouring skins. He argues that Qumran's location was ideal for a tannery—between potential markets like Jericho and Ein Gedi.

For his part, Peleg believes Qumran went through several distinct stages. As the morning heat mounts, he leads me up a steep ridge above the site, where a channel hewn into the rock brought water into the settlement. From our high perch, he points out the foundations of a massive tower that once commanded a fine view of the sea to the east toward today's Jordan. "Qumran was a military post around 100 B.C.," he says. "We are one day from Jerusalem, and it fortified the northeast shore of the Dead Sea." Other forts from this era

SDMNH; CNN; UNIVERSITY OF CHICAGO; STEVEN HIRSCH; ERICH LESS

are scattered among the rocky crags above the sea. This was a period when the Nabateans—the eastern rivals of Rome—threatened Judea. But Peleg says that once the Romans conquered the region, in 63 B.C., there was no further need for such bases. He believes out-of-work Judean soldiers and local families may have turned the military encampment to peaceful purposes, building a modest aqueduct that emptied into deep rectangular pools so that fine clay for making pots could settle. "Not every pool with steps is a ritual bath," he points out. He thinks the former soldiers built eight kilns to produce pottery for the markets of Ein Gedi and Jericho, grew dates and possibly made perfume—until the Romans leveled the place during the Jewish insurrection.

But Peleg's view has won few adherents. "It's more interpretation than data," says Jodi Magness, an archaeologist at the University of North Carolina at Chapel Hill who shares de Vaux's view that the site was a religious community. She says that some archaeologists—by refusing to acknowledge evidence that residents of Qumran hid the scrolls—are inclined to leap to conclusions since their research relies solely on the ambiguous, physical remains at the site.

Peleg believes that Jerusalem Jews fleeing the Romans hid the scrolls in Qumran's caves (above: the view from inside one of them). And he argues that the area's pools (opposite far left) were for making clay, not for ritual baths.

RICHARD NOWITZ / CORBIS; AHIKAM SERI

Even jurisdiction over Qumran is a source of contention. The site is located on the West Bank, where Palestinians and some Israeli archaeologists say that Peleg's excavations are illegal under international law.

The Qumran controversy took a bizarre turn last March, when Golb's son, Raphael, was arrested on charges of identity theft, criminal impersonation and aggravated harassment. In a statement, the New York District Attorney's office says that Raphael "engaged in a systematic scheme on the Internet, using dozens of Internet aliases, in order to influence and affect debate on the Dead Sea Scrolls, and in order to harass Dead Sea Scrolls scholars" who disputed his father's findings. The alleged target was Golb's old rival, Schiffman. For his part, Raphael Golb entered a plea of not guilty on July 8, 2009. The case has been adjourned until January 27.

About the only thing that the adversaries seem to agree on is that money is at the root of the problem. Popular books with new theories about Qumran sell, says Schiffman. Golb notes that the traditional view of Qumran is more likely to attract tourists to the site.

Some scholars seek a middle ground. Robert Cargill, an archaeologist at the University of California at Los Angeles, envisions Qumran as a fort that later sheltered a group producing not only scrolls but an income through tanning or pottery making. It was a settlement, he says, "that wanted to be self-reliant—the question is just how Jewish and just how devout they were."

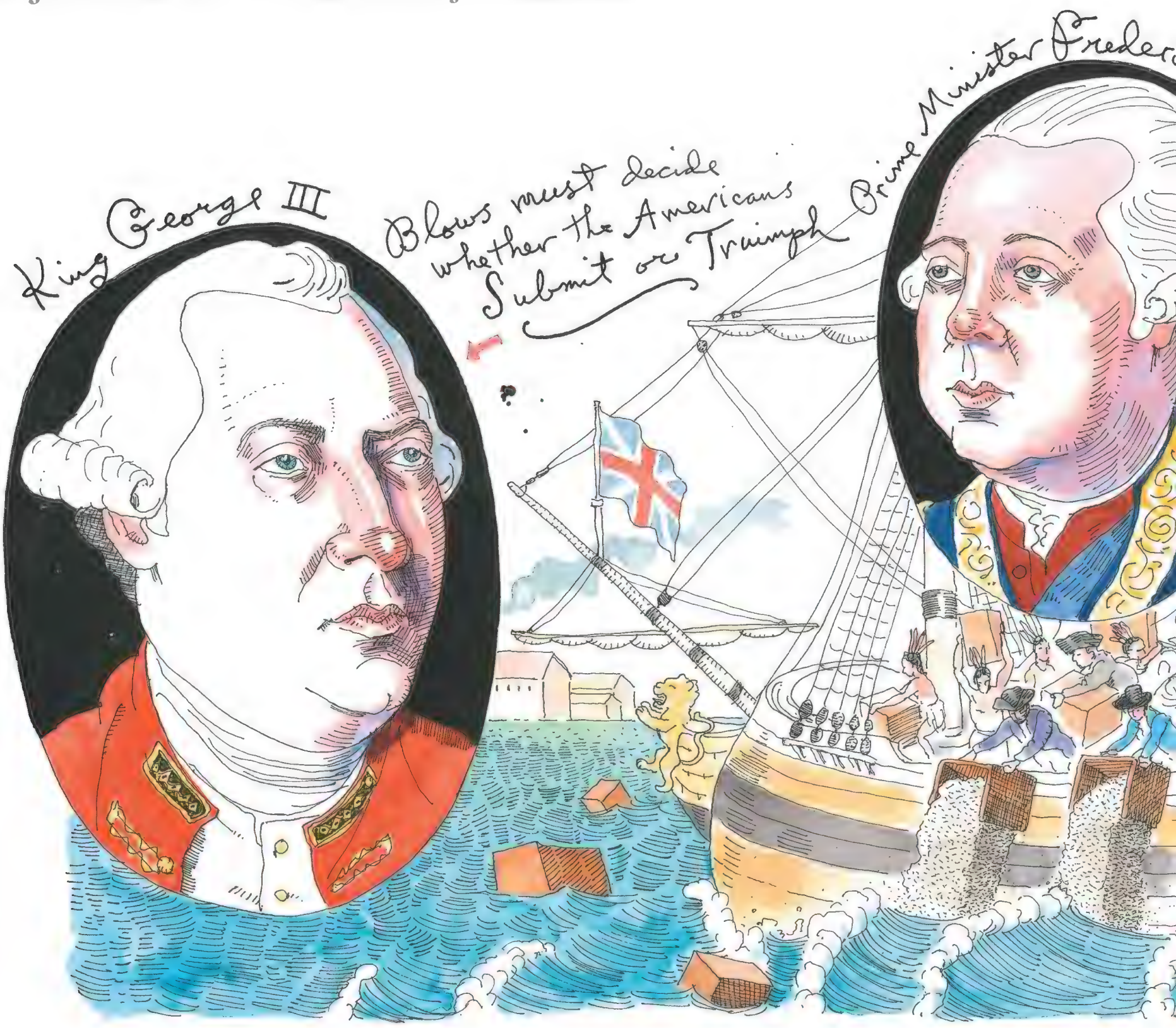
Efforts at compromise have hardly quelled the conflicting theories. Perhaps, as French archaeologist Jean-Baptiste Humbert suggests, Qumran scholars are shaped by their personal experience as well as by their research. "One sees what one wants to see," says Humbert, whether it's a monastery, a fort, a tannery or a manor house.

But the debate matters little to the thousands of visitors who flock to the Holy Land. For them, Qumran remains the place where a modern-day miracle occurred—the unlikely discovery of sacred texts, saved from destruction to enlighten future generations about the word of God. As I climb into Peleg's jeep for the quick trip back to Jerusalem, new crowds of tourists are exiting the buses.

MYTHS OF THE AMERICAN REVOLUTION

WAS GEORGE WASHINGTON A BRILLIANT STRATEGIST? DID AMERICAN PATRIOTS RUSH TO TAKE UP ARMS? COULD GREAT BRITAIN HAVE WON THE WAR? A NOTED HISTORIAN DEBUNKS THE CONVENTIONAL WISDOM

BY JOHN FERLING ILLUSTRATIONS BY JOE CIARDIELLO



WE THINK WE KNOW THE REVOLUTIONARY WAR. *After all, the American Revolution and the war that accompanied it not only determined the nation we would become but also continue to define who we are. The Declaration of Independence, the Midnight Ride, Valley Forge—the whole glorious chronicle of the colonists' rebellion against tyranny is in the American DNA. Often it is the Revolution that is a child's first encounter with history.*

Yet much of what we know is not entirely true. Perhaps more than any defining moment in American history, the War of Independence is swathed in beliefs not borne out by the facts. Here, in order to form a more perfect understanding, the most significant myths of the Revolutionary War are reassessed.

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I. GREAT BRITAIN DID NOT KNOW WHAT IT WAS GETTING INTO

IN THE COURSE OF ENGLAND'S long and unsuccessful attempt to crush the American Revolution, the myth arose that its government, under Prime Minister Frederick, Lord North, had acted in haste. Accusations circulating at the time—later to become conventional wisdom—held that the nation's political leaders had failed to comprehend the gravity of the challenge.

Actually, the British cabinet, made up of nearly a score of ministers, first considered resorting to military might as early as January 1774, when word of the Boston Tea Party reached London. (Recall that on December 16, 1773, protesters had boarded British vessels in Boston Harbor and destroyed cargoes of tea, rather than pay a tax imposed by Parliament.) Contrary to popular belief both then and now, Lord North's government did not respond impulsively to the news. Throughout early 1774, the prime minister and his cabinet engaged in lengthy debate on whether coercive actions would lead to war. A second question was considered as well: Could Britain win such a war?

By March 1774, North's government had opted for punitive measures that fell short of declaring war. Parliament enacted the Coercive Acts—or Intolerable Acts, as Americans called them—and applied the legislation to Massachusetts alone, to punish the colony for its provocative act. Britain's principal action was to close Boston Harbor until the tea had been paid for. England also installed Gen. Thomas Gage, commander of the British Army in America, as governor of the colony. Politicians in London chose to heed the counsel of Gage, who opined that the colonists would "be lyons whilst we are lambs but if we take the resolute part they will be very meek."

Britain, of course, miscalculated hugely. In September 1774, colonists convened the First Continental Congress in Philadelphia; the members voted to embargo British commerce until all British taxes and the Coercive Acts were repealed. News of that vote reached London in December. A second round of deliberations within North's ministry ensued for nearly six weeks.

Throughout its deliberations, North's government agreed on one point: the Americans would pose little challenge in the event of war. The Americans had neither a standing army nor a navy; few among them were experienced officers. Britain possessed a professional army and the world's greatest navy. Furthermore, the colonists had virtually no history of cooperating with one another, even in the face of danger. In addition, many in the cabinet were swayed by disparaging assessments of American soldiers leveled by British officers in earlier wars. For instance, during the French and Indian War (1754-63), Brig. Gen. James Wolfe had described America's soldiers as "cowardly dogs." Henry Ellis, the royal governor of Georgia, nearly simultaneously asserted that the colonists were a "poor species of fighting men" given to "a want of bravery."

Still, as debate continued, skeptics—especially within Britain's army and navy—raised troubling questions. Could the Royal Navy blockade the 1,000-mile-long American coast? Couldn't two million free colonists muster a force of 100,000 or so citizen-soldiers, nearly four times the size of Britain's army in 1775? Might not an American army of this size replace its losses more easily than Britain? Was it possible to supply an army operating 3,000 miles from home? Could Britain subdue a rebellion across 13 colonies in an area some six times the size of England? Could the British Army operate deep in America's interior, far from coastal supply bases? Would a protracted war bankrupt Britain? Would France and Spain, England's age-old enemies, aid American rebels? Was Britain risking starting a broader war?

After the Continental Congress convened, King George III told his ministers that "blows must decide" whether the Americans "submit or triumph."

North's government agreed. To back down, the ministers believed, would be to lose the colonies. Confident of Britain's overwhelming military superiority and hopeful that colonial

Britain's leaders (opposite: King George III and Lord North) made a miscalculation when they assumed that resistance from the colonies, as the Earl of Dartmouth predicted, could not be "very formidable."

resistance would collapse after one or two humiliating defeats, they chose war. The Earl of Dartmouth, who was the American Secretary, ordered General Gage to use "a vigorous Exertion of . . . Force" to crush the rebellion in Massachusetts. Resistance from the Bay Colony, Dartmouth added, "cannot be very formidable."

II. AMERICANS OF ALL STRIPES TOOK UP ARMS OUT OF PATRIOTISM

THE TERM "SPIRIT OF '76" refers to the colonists' patriotic zeal and has always seemed synonymous with the idea that every able-bodied male colonist resolutely served, and suffered, throughout the eight-year war.

To be sure, the initial rally to arms was impressive. When the British Army marched out of Boston on April 19, 1775, messengers on horseback, including Boston silversmith Paul Revere, fanned out across New England to raise the alarm. Summoned by the feverish pealing of church bells, militiamen from countless hamlets hurried toward Concord, Massachusetts, where the British regulars planned to destroy a rebel arsenal. Thousands of militiamen arrived in time to fight; 89 men from 23 towns in Massachusetts were killed or wounded on that first day of war, April 19, 1775. By the next morning, Massachusetts had 12 regiments in the field. Connecticut soon mobilized a force of 6,000, one-quarter of its military-age men. Within a week, 16,000 men from the four New England colonies formed a siege army outside British-occupied Boston. In June, the Continental Congress took over the New England army, creating a national force, the Continental Army. Thereafter, men throughout America took up arms. It seemed to the British regulars that every able-bodied American male had become a soldier.

Many American colonists signed up as soldiers for the regular pay. As one recruit put it, "I might as well endeavor to get as much for my skin as I could."

But as the colonists discovered how difficult and dangerous military service could be, enthusiasm waned. Many men preferred to remain home, in the safety of what Gen. George Washington described as their "Chimney Corner." Early in the war, Washington wrote that he despaired of "compleating the army by Voluntary Inlistments." Mindful that volunteers had rushed to enlist when hostilities began, Washington predicted that "after the first emotions are over," those who were willing to serve from a belief in the "goodness of the cause" would amount to little more than "a drop in the Ocean." He was correct. As 1776 progressed, many colonies were compelled to entice soldiers with offers of cash bounties, clothing, blankets and extended furloughs or enlistments shorter than the one-year term of service established by Congress.

The following year, when Congress mandated that men who enlisted must sign on for three years or the duration of the conflict, whichever came first, offers of cash and land bounties became an absolute necessity. The states and the army also turned to slick-tongued recruiters to round up volunteers. General Washington had urged conscription, stating that "the Government must have recourse to coercive measures." In April 1777, Congress recommended a draft to the states. By the end of 1778, most states were conscripting men when Congress' voluntary enlistment quotas were not met.

Moreover, beginning in 1778, the New England states, and eventually all Northern states, enlisted African-Americans, a practice that Congress had initially forbidden. Ultimately, some 5,000 blacks bore arms for the United States, approximately 5 percent of the total number of men who served in the Continental Army. The African-American soldiers made an important contribution to America's ultimate victory. In 1781, Baron Ludwig von Closen, a veteran officer in the French Army, remarked that the "best [regiment] under arms" in the Continental Army was one in which 75 percent of the soldiers were African-Americans.

Longer enlistments radically changed the composition of the Army. Washington's troops in 1775-76 had represented a cross section of the free male population. But few who owned farms were willing to serve for the duration, fearing loss of their property

While most American soldiers suffered terrible privations, others lived relatively high off the hog. One private boasted of his "snug room."

if years passed without producing revenue from which to pay taxes. After 1777, the average Continental soldier was young, single, propertyless, poor and in many cases an outright pauper. In some states, such as Pennsylvania, up to one in four soldiers was an impoverished recent immigrant. Patriotism aside, cash and land bounties offered an unprecedented chance for economic mobility for these men. Joseph Plumb Martin of Milford, Connecticut, acknowledged that he had enlisted for the money. Later, he would recollect the calculation he had made at the time: "As I must go, I might as well endeavor to get as much for my skin as I could." For three-quarters of the war, few middle-class Americans bore arms in the Continental Army, although thousands did serve in militias.

III. CONTINENTAL SOLDIERS WERE ALWAYS RAGGED AND HUNGRY

ACCOUNTS OF SHOELESS CONTINENTAL ARMY soldiers leaving bloody footprints in the snow or going hungry in a land of abundance are all too accurate. Take, for example, the experience of Connecticut's Private Martin. While serving with the Eighth Connecticut Continental Regiment in the autumn of 1776, Martin went for days with little more to eat than a handful of chestnuts and, at one point, a portion of roast sheep's head, remnants of a meal prepared for those he sarcastically referred to as his "gentleman officers." Ebenezer Wild, a Massachusetts soldier who served at Valley Forge in the terrible winter of 1777-78, would recall that he subsisted for days on "a leg of nothing." One of his comrades, Dr. Albigence Waldo, a Continental Army surgeon, later reported that many men survived largely on what were known as fire cakes (flour and water baked over coals). One soldier, Waldo wrote, complained that his "glutted Gutts are turned to Pasteboard." The Army's supply system, imperfect at best, at times broke down altogether; the result was misery and want.

But that was not always the case. So much heavy clothing arrived from France at the beginning of the winter in 1779 that Washington was compelled to locate storage facilities for his surplus.

In a long war during which American soldiers were posted from upper New York to lower Georgia, conditions faced by the troops varied widely. For instance, at the same time that Washington's siege army at Boston in 1776 was well supplied, many American soldiers, engaged in the failed invasion of Quebec staged from Fort Ticonderoga in New York, endured near starvation. While one soldier in seven was dying from hunger and disease at Valley Forge, young Private Martin, stationed only a few miles away in Downingtown, Pennsylvania, was assigned to patrols that foraged daily for army provisions. "We had very good provisions all winter," he would write, adding that he had lived in "a snug room." In the spring after Valley Forge, he encountered one of his former officers. "Where have you been this winter?" inquired the officer. "Why you are as fat as a pig."

IV. THE MILITIA WAS USELESS

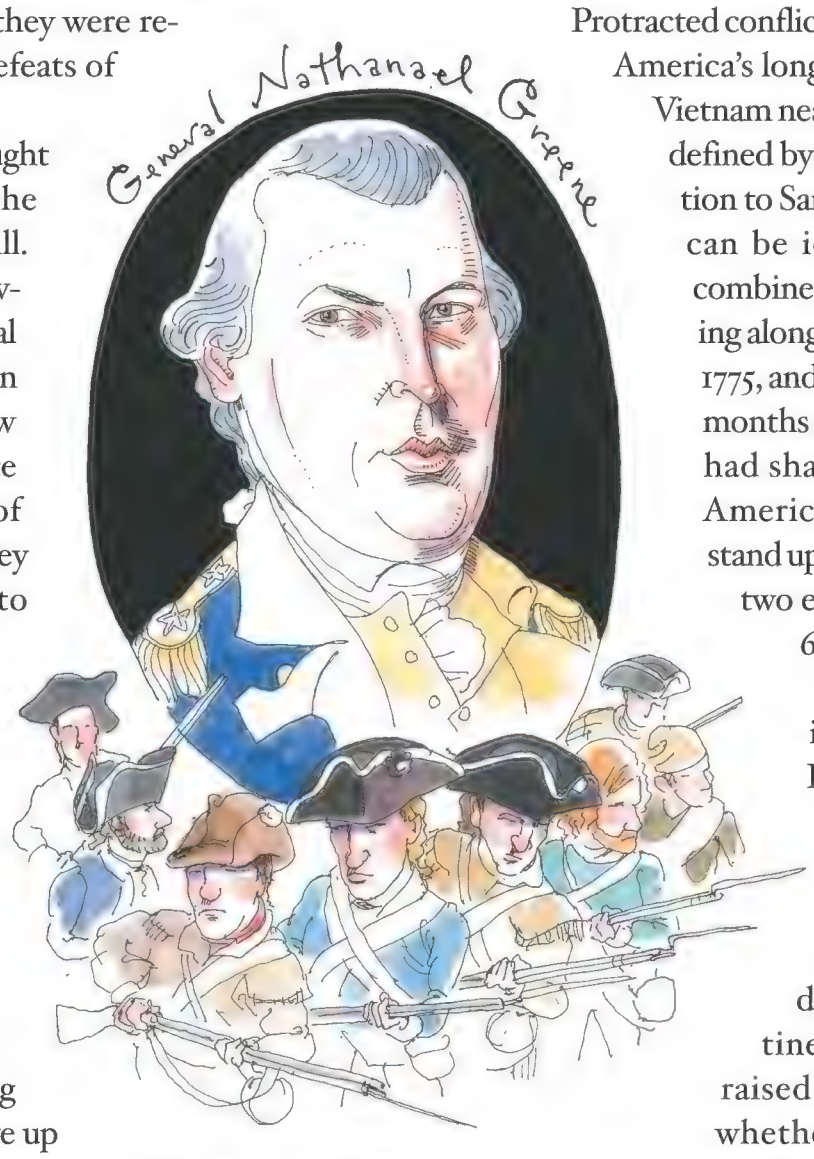
THE NATION'S FIRST SETTLERS adopted the British militia system, which required all able-bodied men between 16 and 60 to bear arms. Some 100,000 men served in the Continental Army during the Revolutionary War. Probably twice that number soldiered as militiamen, for the most part defending the home front, functioning as a police force and occasionally engaging in enemy surveillance. If a militia company was summoned to active duty and sent to the front lines to augment the Continentals, it usually remained mobilized for no more than 90 days.

Some Americans emerged from the war convinced that the militia had been largely ineffective. No one did more to sully its reputation than General Washington, who insisted that a decision to "place any dependence on Militia is assuredly resting on a broken staff."

Militiamen were older, on average, than the Continental soldiers and received only perfunctory training; few had experienced combat. Washington complained that militiamen

had failed to exhibit "a brave & manly opposition" in the battles of 1776 on Long Island and in Manhattan. At Camden, South Carolina, in August 1780, militiamen panicked in the face of advancing redcoats. Throwing down their weapons and running for safety, they were responsible for one of the worst defeats of the war.

Yet in 1775, militiamen had fought with surpassing bravery along the Concord Road and at Bunker Hill. Nearly 40 percent of soldiers serving under Washington in his crucial Christmas night victory at Trenton in 1776 were militiamen. In New York state, half the American force in the vital Saratoga campaign of 1777 consisted of militiamen. They also contributed substantially to American victories at Kings Mountain, North Carolina, in 1780 and Cowpens, South Carolina, the following year. In March 1781, Gen. Nathanael Greene adroitly deployed his militiamen in the Battle of Guilford Courthouse (fought near present-day Greensboro, North Carolina). In that engagement, he inflicted such devastating losses on the British that they gave up the fight for North Carolina.



Militiamen were disparaged as unreliable, yet they often performed admirably—particularly under the command of Gen. Nathanael Greene in 1781.

The militia had its shortcomings, to be sure, but America could not have won the war without it. As a British general, Earl Cornwallis, wryly put it in a letter in 1781, "I will not say much in praise of the militia, but the list of British officers and soldiers killed and wounded by them . . . proves but too fatally they are not wholly contemptible."

V. SARATOGA WAS THE WAR'S TURNING POINT

ON OCTOBER 17, 1777, British Gen. John Burgoyne surrendered 5,895 men to American forces outside Saratoga, New York. Those losses, combined with the 1,300 men killed, wounded and captured during the preceding five months of Burgoyne's campaign to reach Albany in upstate New York, amounted to nearly one-quarter of those serving under the British flag in America in 1777.

The defeat persuaded France to form a military alliance with the United States. Previously, the French, even though they believed that London would be fatally weakened by the loss of its American colonies, had not wished to take a chance on backing the new American nation. General Washington, who rarely made optimistic pronouncements, exulted that France's entry into the war in February 1778 had introduced "a most happy tone to all our affairs," as it "must put the Independency of America out of all manner of dispute."

But Saratoga was not the turning point of the war. Protracted conflicts—the Revolutionary War was America's longest military engagement until Vietnam nearly 200 years later—are seldom defined by a single decisive event. In addition to Saratoga, four other key moments can be identified. The first was the combined effect of victories in the fighting along the Concord Road on April 19, 1775, and at Bunker Hill near Boston two months later, on June 17. Many colonists had shared Lord North's belief that American citizen-soldiers could not stand up to British regulars. But in those two engagements, fought in the first 60 days of the war, American soldiers—all militiamen—inflicted huge casualties. The British lost nearly 1,500 men in those encounters, three times the American toll. Without the psychological benefits of those battles, it is debatable whether a viable Continental Army could have been raised in that first year of war or whether public morale would have withstood the terrible defeats of 1776.

Between August and November of 1776, Washington's army was driven from Long Island, New York City proper and the rest of Manhattan Island, with some 5,000 men killed, wounded and captured. But at Trenton in late December 1776, Washington achieved a great victory, destroying a Hessian force of nearly 1,000 men; a week later, on January 3, he defeated a British force at Princeton, New Jersey. Washington's stunning triumphs, which revived hopes of victory and permitted recruitment in 1777, were a second turning point.

A third turning point occurred when Congress abandoned one-year enlistments and transformed the Continental Army into a standing army, made up of regulars who volunteered—or were conscripted—for long-term service. A standing army was contrary to American tradition and was viewed as unacceptable by citizens who understood that history was filled with instances of generals who had used their armies to gain dictatorial powers. Among the critics was Massachusetts' John Adams, then a delegate to the Second Continental Congress. In 1775, he wrote that he feared a standing army would become an "armed monster" composed of the "meanest, idlest, most intemperate and worthless" men. By autumn, 1776, Adams had changed his view, remark-

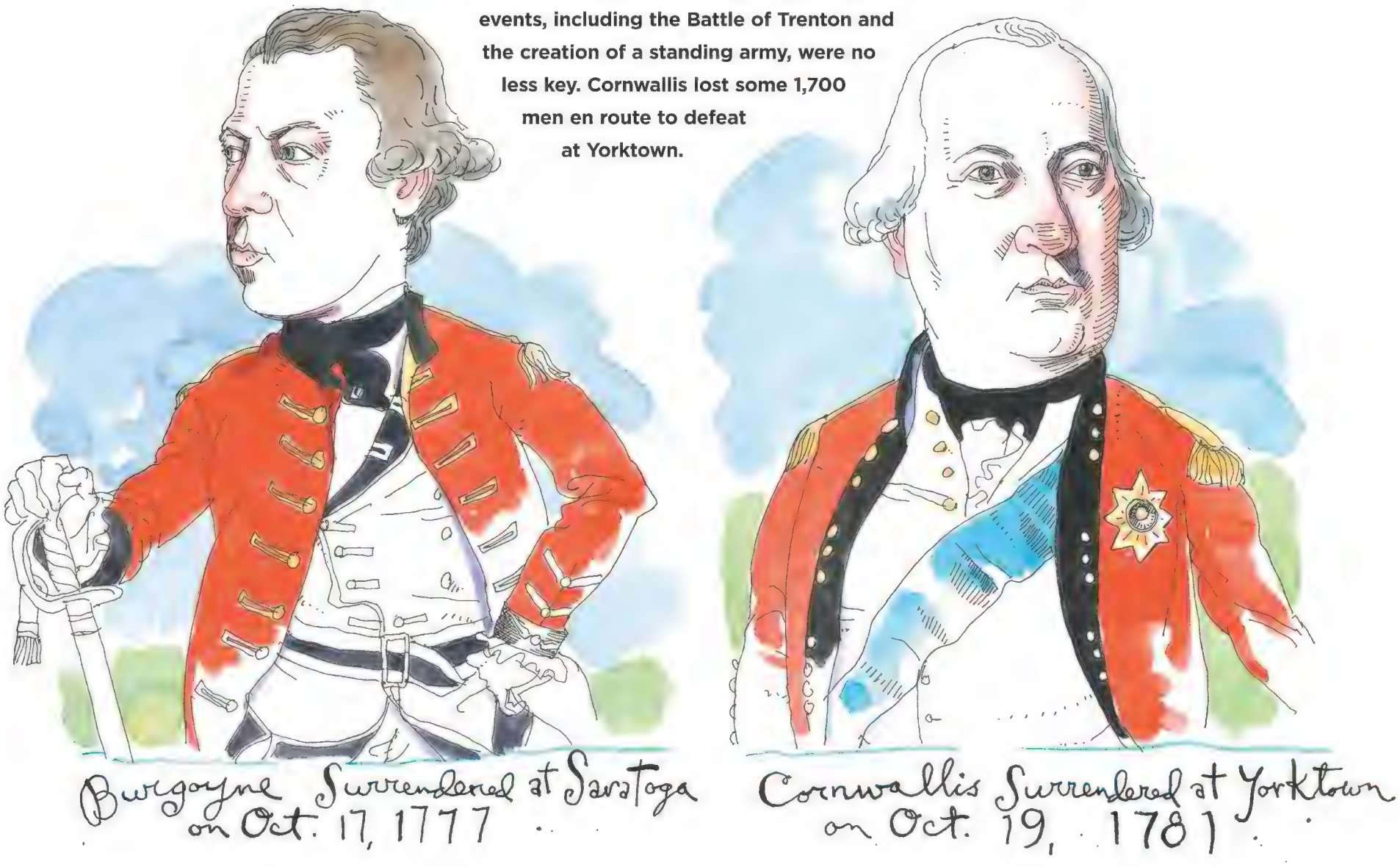
ing that unless the length of enlistment was extended, "our inevitable destruction will be the Consequence." At last, Washington would get the army he had wanted from the outset; its soldiers would be better trained, better disciplined and more experienced than the men who had served in 1775-76.

The campaign that unfolded in the South during 1780 and 1781 was the final turning point of the conflict. After failing to crush the rebellion in New England and the mid-Atlantic states, the British turned their attention in 1778 to the South, hoping to retake Georgia, South Carolina, North Carolina and Virginia. At first the Southern Strategy, as the British termed the initiative, achieved spectacular results. Within 20 months, the redcoats had wiped out three American armies, retaken Savannah and Charleston, occupied a substantial portion of the South Carolina backcountry, and killed, wounded or captured 7,000 American soldiers, nearly equaling the British losses at Saratoga. Lord George Germain, Britain's American Secretary after 1775, declared that the Southern victories augured a "speedy and happy termination of the American war."

But the colonists were not broken. In mid-1780, organized partisan bands, composed largely of guerrilla fighters, struck from within South Carolina's swamps and tangled forests to ambush redcoat supply trains and patrols. By summer's end, the British high command acknowledged that South Carolina, a colony they had recently declared pacified, was "in an absolute state of rebellion." Worse was yet to come. In October 1780, rebel militia and backcountry volunteers destroyed an army of more than 1,000 Loyalists at Kings Mountain in North Carolina. After that rout, Cornwallis found it nearly impossible to persuade Loyalists to join the cause.

In January 1781, Cornwallis marched an army of more than 4,000 men to North Carolina, hoping to cut supply routes that sustained partisans farther south. In battles at Cowpens and Guilford Courthouse and in an exhausting pursuit of the Army under Gen. Nathanael Greene, Cornwallis lost some 1,700 men, nearly 40 percent of the troops under his command at the outset of the North Carolina campaign. In April 1781, despairing of crushing the insurgency in the Carolinas, he took his army into Virginia, where he hoped to sever supply routes linking the upper and lower South. It was a fateful decision, as it put Cornwallis on a course that would lead that autumn to disaster at Yorktown, where he was trapped and compelled to surrender more than 8,000 men on October 19, 1781. The next day, General Washington informed the Continental Army that "the glorious event" would send "general Joy [to] every breast" in America. Across the sea, Lord North reacted to the news as if he had "taken a ball in the breast," reported the messenger who delivered the bad tidings. "O God," the prime minister exclaimed, "it is all over."

Although Burgoyne's defeat at Saratoga is often cited as the war's turning point, other events, including the Battle of Trenton and the creation of a standing army, were no less key. Cornwallis lost some 1,700 men en route to defeat at Yorktown.



VI. GENERAL WASHINGTON WAS A BRILLIANT TACTICIAN AND STRATEGIST

AMONG THE HUNDREDS of eulogies delivered after the death of George Washington in 1799, Timothy Dwight, president of Yale College, averred that the general's military greatness consisted principally in his "formation of extensive and masterly plans" and a "watchful seizure of every advantage." It was the prevailing view and one that has been embraced by many historians.

In fact, Washington's missteps revealed failings as a strategist. No one understood his limitations better than Washington himself who, on the eve of the New York campaign in 1776, confessed to Congress his "want of experience to move on a large scale" and his "limited and contracted knowledge . . . in Military Matters."

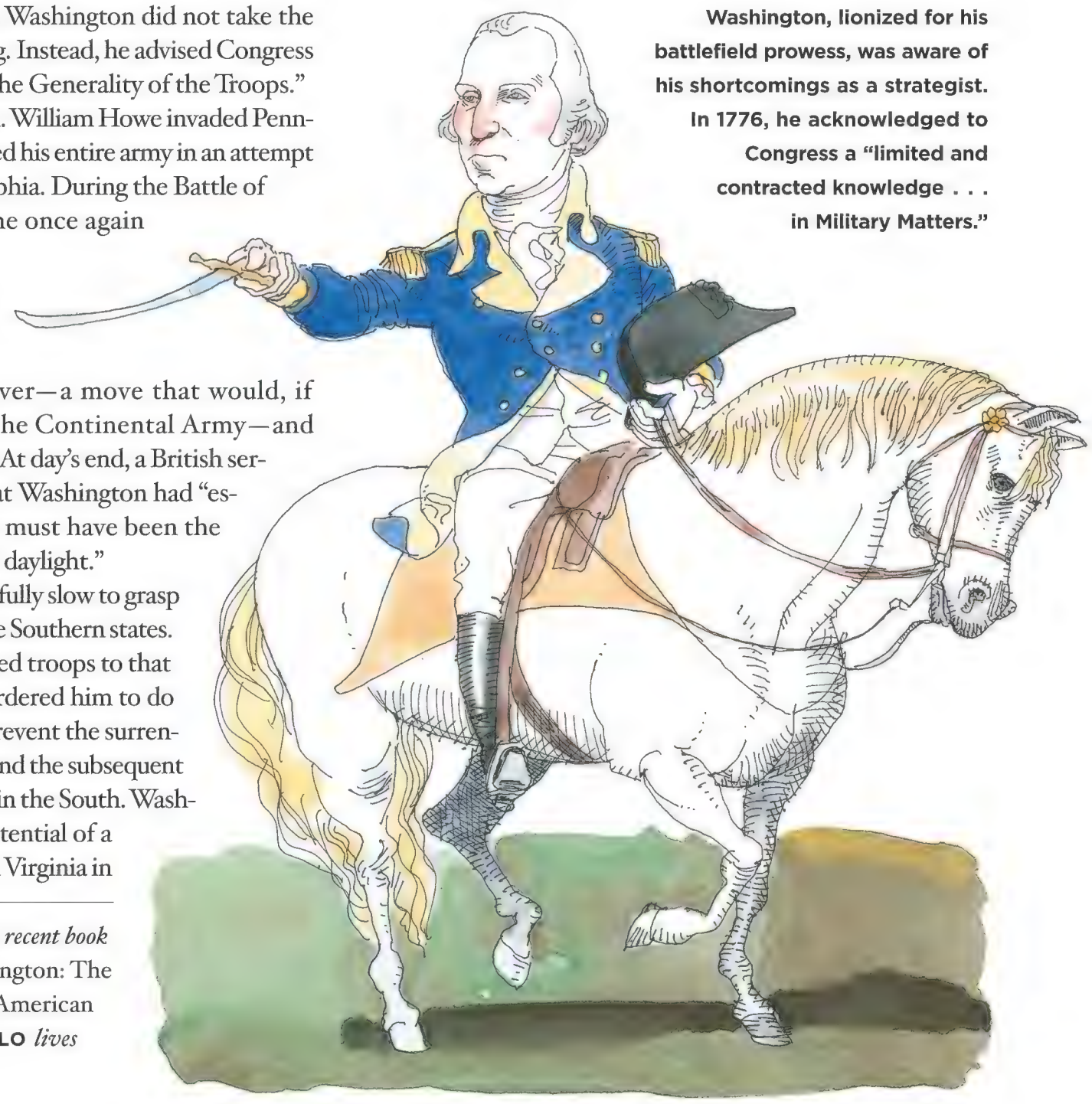
In August 1776, the Continental Army was routed in its first test on Long Island in part because Washington failed to properly reconnoiter and he attempted to defend too large an area for the size of his army. To some extent, Washington's nearly fatal inability to make rapid decisions resulted in the November losses of Fort Washington on Manhattan Island and Fort Lee in New Jersey, defeats that cost the colonists more than one-quarter of the army's soldiers and precious weaponry and military stores. Washington did not take the blame for what had gone wrong. Instead, he advised Congress of his "want of confidence in the Generality of the Troops."

In the fall of 1777, when Gen. William Howe invaded Pennsylvania, Washington committed his entire army in an attempt to prevent the loss of Philadelphia. During the Battle of Brandywine, in September, he once again froze with indecision. For nearly two hours information poured into headquarters that the British were attempting a flanking maneuver—a move that would, if successful, entrap much of the Continental Army—and Washington failed to respond. At day's end, a British sergeant accurately perceived that Washington had "escaped a total overthrow, that must have been the consequence of an hours more daylight."

Later, Washington was painfully slow to grasp the significance of the war in the Southern states. For the most part, he committed troops to that theater only when Congress ordered him to do so. By then, it was too late to prevent the surrender of Charleston in May 1780 and the subsequent losses among American troops in the South. Washington also failed to see the potential of a campaign against the British in Virginia in 1780 and 1781, prompting Comte de Rochambeau, commander of the French Army in America, to write despairingly that the American general "did not conceive the affair of the south to be such urgency." Indeed, Rochambeau, who took action without Washington's knowledge, conceived the Virginia campaign that resulted in the war's decisive encounter, the siege of Yorktown in the autumn of 1781.

Much of the war's decision-making was hidden from the public. Not even Congress was aware that the French, not Washington, had formulated the strategy that led to America's triumph. During Washington's presidency, the American pamphleteer Thomas Paine, then living in France, revealed much of what had occurred. In 1796 Paine published a "Letter to George Washington," in which he claimed that most of General Washington's supposed achievements were "fraudulent." "You slept away your time in the field" after 1778, Paine charged, arguing that Gens. Horatio Gates and Greene were more responsible for America's victory than Washington.

There was some truth to Paine's acid comments, but his indictment failed to recognize that one can be a great military leader without being a gifted tactician or strategist. Washington's character, judgment, industry and meticulous



Washington, lionized for his battlefield prowess, was aware of his shortcomings as a strategist. In 1776, he acknowledged to Congress a "limited and contracted knowledge . . . in Military Matters."

Historian **JOHN FERLING***'s most recent book is* The Ascent of George Washington: The Hidden Political Genius of an American Icon. *Illustrator* **JOE CIARDIELLO** *lives in Milford, New Jersey.*

habits, as well as his political and diplomatic skills, set him apart from others. In the final analysis, he was the proper choice to serve as commander of the Continental Army.

VII. GREAT BRITAIN COULD NEVER HAVE WON THE WAR

ONCE THE REVOLUTIONARY WAR WAS LOST, some in Britain argued that it had been unwinnable. For generals and admirals who were defending their reputations, and for patriots who found it painful to acknowledge defeat, the concept of foreordained failure was alluring. Nothing could have been done, or so the argument went, to have altered the outcome. Lord North was condemned, not for having lost the war, but for having led his country into a conflict in which victory was impossible.

In reality, Britain might well have won the war. The battle for New York in 1776 gave England an excellent opportunity for a decisive victory. France had not yet allied with the Americans. Washington and most of his lieutenants were rank amateurs. Continental Army soldiers could not have been more untried. On Long Island, in New York City and in upper Manhattan, on Harlem Heights, Gen. William Howe trapped much of the American Army and might have administered a fatal blow. Cornered in the hills of Harlem, even Washington admitted that if Howe attacked, the Continental Army would be "cut off" and faced with the choice of fighting its way out "under every disadvantage" or being starved into submission. But the excessively cautious Howe was slow to act, ultimately allowing Washington to slip away.

Britain still might have prevailed in 1777. London had formulated a sound strategy that called for Howe, with his large force, which included a naval arm, to advance up the Hudson River and rendezvous at Albany with General Burgoyne, who was to invade New York from Canada. Britain's objective was to cut New England off from the other nine states by taking the Hudson. When the rebels did engage—the thinking went—they would face a giant British pincer maneuver that would doom them to catastrophic losses. Though the operation offered the prospect of decisive victory, Howe scuttled it. Believing that Burgoyne needed no assistance and obsessed by a desire to capture Philadelphia—home of the Continental Congress—Howe opted to move against Pennsylvania instead. He took Philadelphia, but he accomplished little by his action. Meanwhile, Burgoyne suffered total defeat at Saratoga.

Most historians have maintained that Britain had no hope of victory after 1777, but that assumption constitutes another myth of this war. Twenty-four months into its Southern Strategy, Britain was close to reclaiming substantial territory within its once-vast American empire. Royal authority had been restored in Georgia, and much of South Carolina was occupied by the British.

As 1781 dawned, Washington warned that his army was "exhausted" and the citizenry "discontented." John Adams believed that France, faced with mounting debts and having failed

In 1781, John Adams feared that a demoralized France would abandon the battlefield. Without a decisive victory, America's fate might well have been determined by a peace conference.

to win a single victory in the American theater, would not remain in the war beyond 1781. "We are in the Moment of Crisis," he wrote. Rochambeau feared that 1781 would see the "last struggle of an expiring patriotism." Both Washington and Adams assumed that unless the United States and France scored a decisive victory in 1781, the outcome of the war would be determined at a conference of Europe's great powers.

Stalemated wars often conclude with belligerents retaining what they possessed at the moment an armistice is reached. Had the outcome been determined by a European peace conference, Britain would likely have retained Canada, the trans-Appalachian West, part of present-day Maine, New York City and Long Island, Georgia and much of South Carolina, Florida (acquired from Spain in a previous war) and several Caribbean islands. To keep this great empire, which would have encircled the tiny United States, Britain had only to avoid decisive losses in 1781. Yet Cornwallis' stunning defeat at Yorktown in October cost Britain everything but Canada.

The Treaty of Paris, signed on September 3, 1783, ratified the American victory and recognized the existence of the new United States. General Washington, addressing a gathering of soldiers at West Point, told the men that they had secured America's "independence and sovereignty." The new nation, he said, faced "enlarged prospects of happiness," adding that all free Americans could enjoy "personal independence." The passage of time would demonstrate that Washington, far from creating yet another myth surrounding the outcome of the war, had voiced the real promise of the new nation.

Sherlock Holmes' LONDON

As the detective stalks movie theaters, our reporter tracks down the favorite haunts of Arthur Conan Doyle and his ingenious creation

BY JOSHUA HAMMER PHOTOGRAPHS BY STUART CONWAY

One summer evening in 1889, a young medical school graduate named Arthur Conan Doyle arrived by train at London's Victoria Station and took a hansom cab two and a half miles north to the famed Langham Hotel on Upper Regent Street. Then living in obscurity in the coastal town of Southsea, near Portsmouth, the 30-year-old ophthalmologist was looking to advance his writing career. The magazine *Beeton's Christmas Annual* had recently published his novel, *A Study in Scarlet,* which introduced the private detective Sherlock Holmes. Now Joseph Marshall Stoddart, managing editor of *Lippincott's Monthly*, a Philadelphia magazine, was in London to establish a British edition of his publication. At the suggestion of a friend, he had invited Conan Doyle to join him for dinner in the Langham's opulent dining room.

Amid the bustle of waiters, the chink of fine silver and the hum of dozens of conversations, Conan Doyle found Stoddart to be "an excellent fellow," he would write years later. But he was captivated by one of the other invited guests, an Irish playwright and author named Oscar Wilde. "His conversation left an indelible impression upon my mind," Conan Doyle remembered. "He had a curious precision of statement, a delicate flavour of humour, and a trick of small gestures to illustrate his meaning." For both writers, the evening would prove a turning point. Wilde left with a commission to write his novel, *The Picture of Dorian Gray,* which appeared in

The city, in all its brooding grandeur, takes center stage in stories featuring the master of deduction. "Holmes," says Conan Doyle biographer Andrew Lycett, "could never have lived anywhere else but London."

Lippincott's June 1890 issue. And Conan Doyle agreed to produce a second novel starring his ace detective; *The Sign of Four* would cement his reputation. Indeed, critics have speculated that the encounter with Wilde, an exponent of a literary movement known as the Decadents, led Conan Doyle to deepen and darken Sherlock Holmes' character: in *The Sign of Four*'s opening scene, Holmes is revealed to be addicted to a "seven-percent solution" of cocaine.

Today the Langham Hotel sits atop Regent Street like a grand yet faded dowager, conjuring up a mostly vanished Victorian landscape. The interior has been renovated repeatedly over the past century. But the Langham's exterior—monolithic sandstone facade, with wrought-iron balconies, French windows and a columned portico—has hardly changed since the evening Conan Doyle visited 120 years ago. Roger Johnson, publicity director of the Sherlock Holmes Society of London, a 1,000-strong band of Holmes devotees, points to the hotel's mention in several Holmes tales, including *The Sign of Four*, and says it's a kind of shrine for Sherlockians. "It's one of those places where the worlds of Conan Doyle and Sherlock Holmes come together," he adds. Others include the Lyceum Theatre, where one of Conan Doyle's plays was produced (and a location in *The Sign of Four*), as well as the venerable gentlemen's clubs along the thoroughfare of the Strand, establishments that Conan Doyle frequented during forays into the city from his estate in Surrey. Conan Doyle also appropriated St. Bartholomew's Hospital in central London as a setting; it was there that the legendary initial meeting between Holmes and Dr. Watson took place.

ARTHUR IGNATIUS CONAN DOYLE was born on May 22, 1859, in Edinburgh, Scotland, the son of Charles Doyle, an alcoholic who would spend much of his later life in a mental institution, and Mary Foley Doyle, the attractive, lively daughter of an Irish doctor and a teacher; she loved litera-

KEY TO SITES

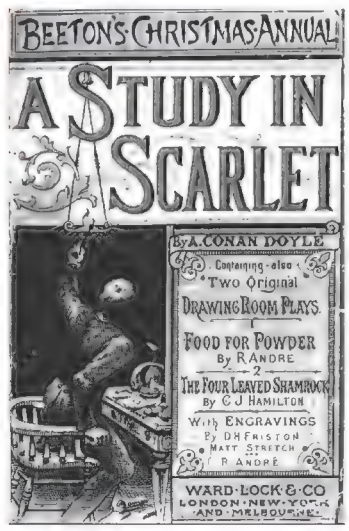
1 Sherlock Holmes Museum
2 The Sherlock Holmes pub
3 Langham Hotel
4 The Lyceum Theatre
5 St. Bartholomew's Hospital
6 Rules restaurant

MAPS: GUILBERT GATES

ture and, according to biographer Andrew Lycett, beguiled her children with her storytelling. Marking the sesquicentennial of Conan Doyle's birth, Edinburgh held a marathon of talks, exhibitions, walking tours, plays, films and public performances. Harvard University sponsored a three-day lecture series examining Holmes' and Conan Doyle's legacy. This past spring, novelist Lyndsay Faye published a new thriller, *Dust and Shadow*, featuring Holmes squaring off against Jack the Ripper. And last month, of course, Holmes took center stage in director Guy Ritchie's Hollywood movie *Sherlock Holmes*, starring Robert Downey Jr. as Holmes and Jude Law as Watson.

A persuasive case can be made that Holmes exerts just as much hold on the world's imagination today as he did a century ago. The Holmesian canon—four novels and 56 stories—continues to sell briskly around the world. The coldly calculating genius in the deerstalker cap, wrestling with his inner demons as he solves crimes that befuddle Scotland Yard, stands as one of literature's most vivid and most alluring creations.

Conan Doyle's other alluring creation was London. Although the author lived only a few months in the capital before moving to the suburbs, he visited the city frequently



Conan Doyle (below: c. 1890, c. age 31) hoped his first novel, *A Study in Scarlet*, published in 1887, would gain him a place in literary London (opposite: map with sites associated with Holmes and his creator, including, left, the still-elegant Langham Hotel). "I knew that the book was as good as I could make it," the author would later recall, "and I had high hopes."

P. 59: AP IMAGES; AKG-IMAGES

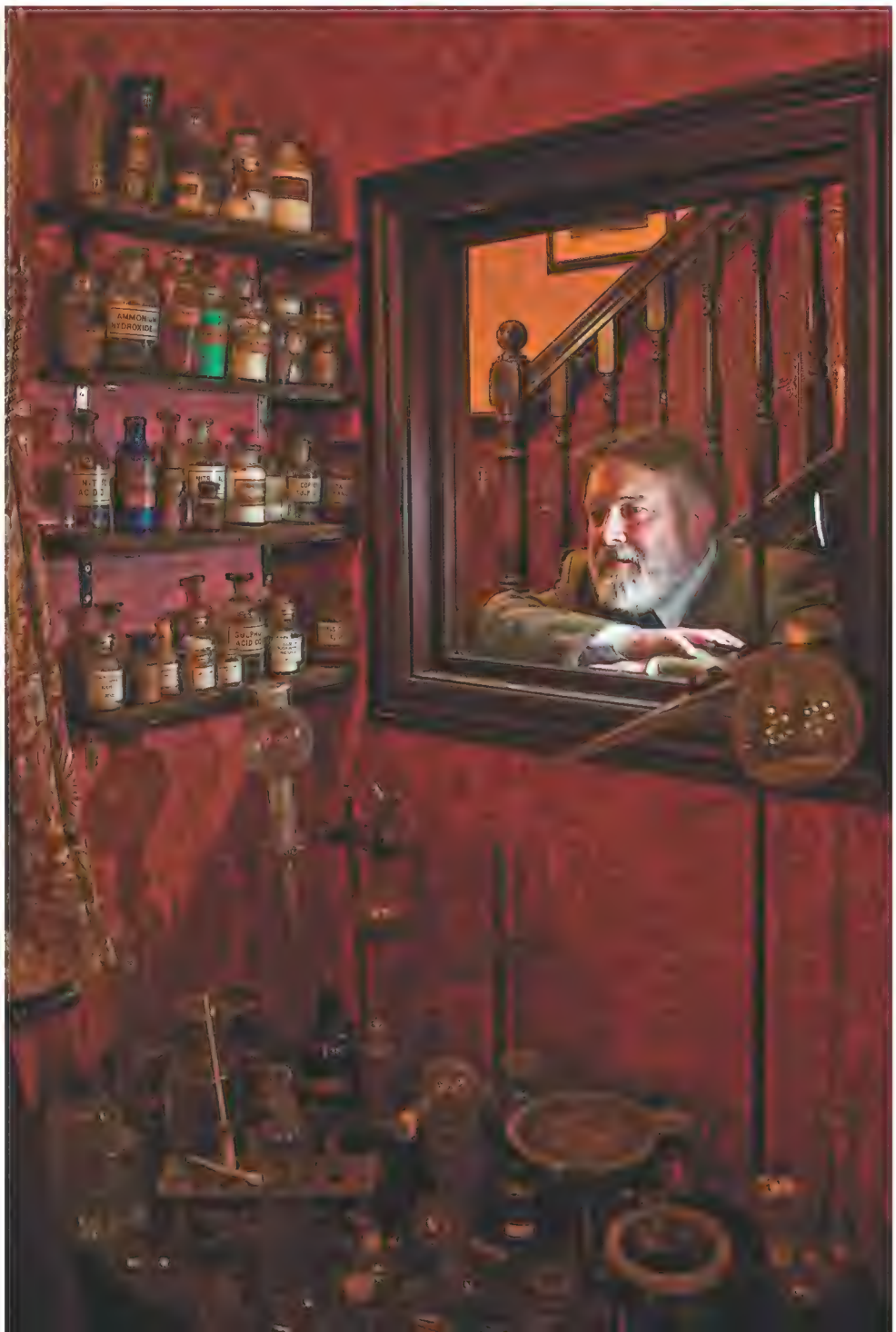
throughout his life. Victorian London takes on almost the presence of a character in the novels and stories, as fully realized—in all its fogs, back alleys and shadowy quarters—as Holmes himself. "Holmes could never have lived anywhere else but London," says Lycett, author of the recent biography *The Man Who Created Sherlock Holmes: The Life and Times of Sir Arthur Conan Doyle*. "London was the hub of the empire. In addition to the Houses of Parliament, it had the sailors' hostels and the opium dens of the East End, the great railway stations. And it was the center of the literary world."

Much of that world, of course, has been lost. The British Clean Air Act of 1956 would consign to history the coal-fueled fogs that shrouded many Holmes adventures and imbued them with menace. ("Mud-coloured clouds drooped sadly over the muddy streets," Conan Doyle writes in *The Sign of Four*. "Down the Strand the lamps were but misty splotches of diffused light which threw a feeble circular glimmer upon the slimy pavement.") The blitz and postwar urban redevelopment swept away much of London's labyrinthine and crime-ridden East End, where "The Man With the Twisted Lip" and other stories are set. Even so, it is still possible to retrace many of the footsteps that Conan Doyle might have taken in London, to follow him from the muddy banks of the Thames to the Old Bailey and obtain a sense of the Victorian world he transmuted into art.

HE FIRST ENCOUNTERED LONDON at the age of 15, while on a three-week vacation from Stonyhurst, the Jesuit boarding school to which his Irish Catholic parents consigned him in northern England. "I believe I am 5 foot 9 high," the young man told his aunt, so she could spot him at Euston station, "pretty stout, clad in dark garments, and above all, with a flaring red muffler round my neck." Escorted around the city by his uncles, young Conan Doyle took in the Tower of London, Westminster Abbey and the Crystal Palace, and viewed a performance of *Hamlet*, starring Henry Irving, at the Lyceum Theatre in the West End. And he went to the Chamber of Horrors at Madame Tussaud's wax museum, then located in the Baker Street Bazaar (and on Marylebone Road today). Conan Doyle viewed with fascination wax models of those who had died on the guillotine during the French Revolution as well as likenesses of British murderers and other arch-criminals. While there, the young man sketched the death scene of French radical Jean-Paul Marat, stabbed in his bath at the height of the Revolution. After visiting the museum, Conan Doyle wrote in a letter to his mother that he had been irresistibly drawn to "the images of the murderers."

More than a decade later, having graduated from medical school in Edinburgh and settled in Southsea, the 27-year-old physician chose London for the backdrop of a novel about a "consulting detective" who solves crimes by applying keen observation and logic. Conan Doyle had been heavily influ-

Writer **JOSHUA HAMMER** *lives in Berlin.*
Photographer **STUART CONWAY** *is based in London.*



A museum devoted to the detective (left) is an elementary stop for aficionados. In the Sherlock Holmes Pub, devotee Roger Johnson (below right) assesses a "chemical corner" similar to the one described at 221B Baker Street in "The Empty House," while evocative objects (below left) include cigars similar to those favored by Holmes.

enced by Dr. Joseph Bell, whom he met at the Edinburgh Infirmary and whose diagnostic powers amazed his students and colleagues. Also, Conan Doyle had read the works of Edgar Allan Poe, including the 1841 "Murders in the Rue Morgue," featuring inspector C. Auguste Dupin. Notes for an early draft of *A Study in Scarlet*—first called "A Tangled Skein"—describe a "Sherringford Holmes" who keeps a collection of rare violins and has access to a chemical laboratory; Holmes is aided by his friend Ormond Sacker, who has seen military service in Sudan. In the published version of *A Study in Scarlet*, Sacker becomes Dr. John H. Watson, who was shot in the shoulder by a "Jezail bullet" in Afghanistan and invalided in 1880 to London—"that great cesspool into which all the loungers and idlers of the Empire are irresistibly drained." As the tale opens, Watson learns from an old friend at the Criterion Bar of "a fellow who is working at the chemical laboratory up at the hospital [St. Bartholomew's]," who is looking to share lodgings. Watson finds Holmes poised over a test tube in the middle of an "infallible" experiment to detect human blood stains. Holmes makes the now-immortal observation: "You have been in Afghanistan, I perceive." (Holmes pieces together a series of clues—Watson's deep tan; an injury to his left arm; a background in medicine; a haggard face—to deduce that Watson had served as an army doctor there.) The physician, intrigued, moves in with Holmes into the "cheerfully furnished" rooms at 221B Baker Street.

The address is another shrine for the detective's devotees—although, as any expert will attest, 221 Baker Street existed only in Conan Doyle's imagination. In the Victorian era, Baker Street went up to only number 85. It then became York Place and eventually Upper Baker Street. (Conan Doyle was hardly a stickler for accuracy in his Holmes stories; he garbled some street names and invented others and put a goose seller in Covent Garden, then a flower and produce market.) But some Sherlockians have made a sport out of searching for the "real" 221B, parsing clues in the texts with the diligence of Holmes himself. "The question is, Did Holmes and Watson live in Upper Baker or in Baker?" says Roger Johnson, who occasionally leads groups of fellow pilgrims on expeditions through the Marylebone neighborhood. "There are arguments in favor of both. There are even arguments in favor of York Place. But the most convincing is that it was the lower section of Baker Street."

ONE DRIZZLY AFTERNOON I join Johnson and Ales Kolodrubec, president of the Czech Society of Sherlock Holmes, who is visiting from Prague, on a walk through Marylebone in search of the location Conan Doyle might

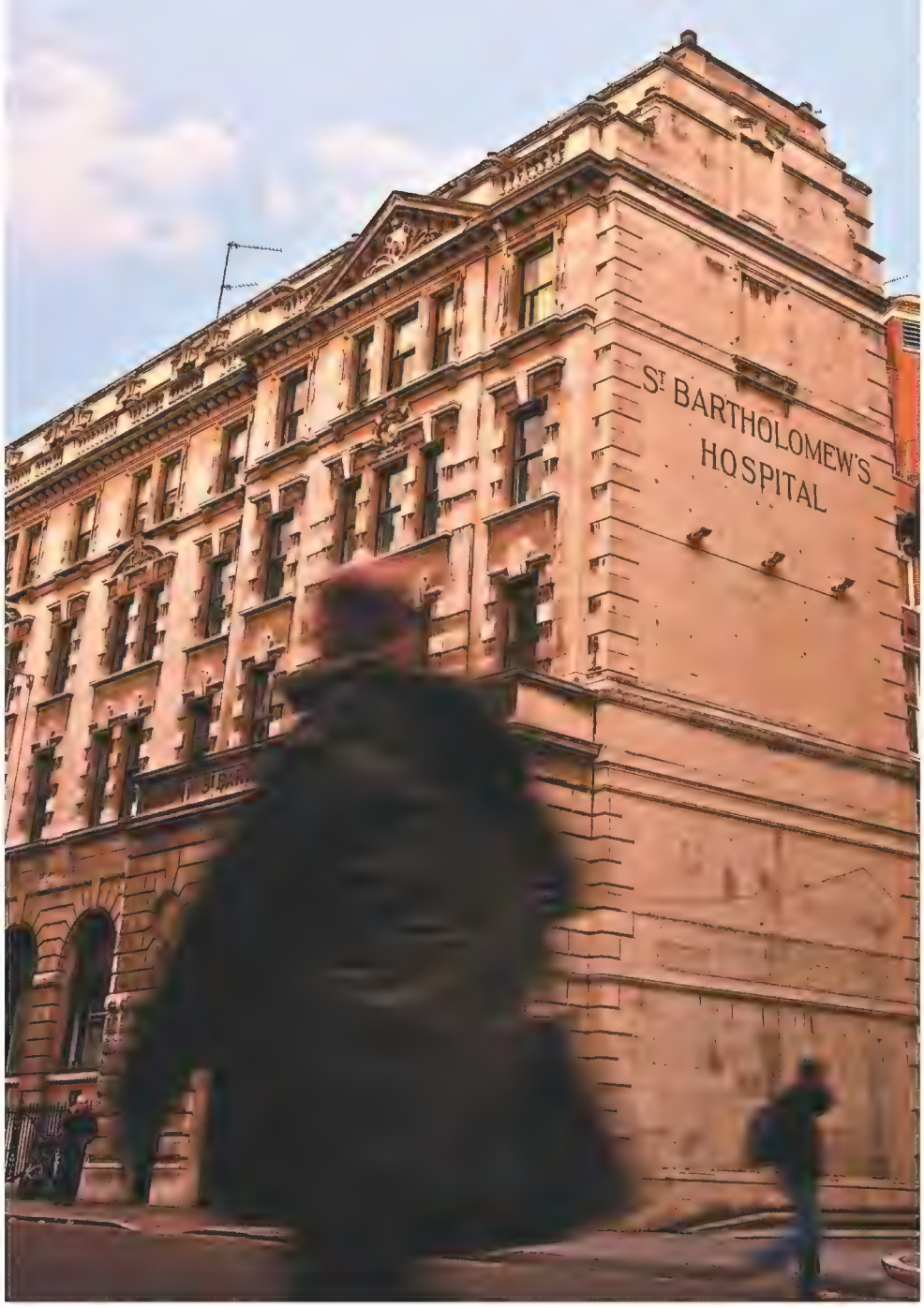
have had in mind for Holmes' abode. Armed with an analysis written by Bernard Davies, a Sherlockian who grew up in the area, and a detailed 1894 map of the neighborhood, we thread through cobblestone mews and alleys to a block-long passage, Kendall Place, lined by brick buildings. Once a hodgepodge of stables and servants' quarters, the street is part of a neighborhood that is now mainly full of businesses. In the climax of the 1903 story "The Empty House," Holmes and Watson sneak through the back entrance of a deserted dwelling, whose front windows face directly onto 221B Baker Street. The description of the Empty House matches that of the old town house we're looking at. "The 'real' 221B," Johnson says decisively, "must have stood across the road." It's a rather disappointing sight: today the spot is marked by a five-story glass-and-concrete office building with a smoothie-and-sandwich take-away shop on the ground floor.

In 1989, Upper Baker and York Place having been merged into Baker Street decades earlier, a London salesman and music promoter, John Aidiniantz, bought a tumbledown Georgian boardinghouse at 239 Baker Street and converted it into the Sherlock Holmes Museum.

A fake London bobby was patrolling in front when I arrived there one weekday afternoon. After paying my £6 entry fee (about $10), I climbed 17 stairs—the exact number mentioned in the Holmes story "A Scandal in Bohemia"—and entered a small, shabby parlor filled with Victorian and Edwardian furniture, along with props that seemed reasonably faithful to the description of the drawing room provided by Watson in "The Empty House": "The chemical corner and the acid-stained deal-topped table. . . . The diagrams, the violin case, and the pipe rack." Watson's stuffy bedroom was one flight up, crammed with medical paraphernalia and case notes; a small exhibition hall, featuring lurid dioramas from the stories and wax figurines of Sherlock Holmes and archenemy Professor Moriarty, filled the third floor. Downstairs in the gift shop, tourists were browsing through shelves of bric-a-brac: puzzles, key rings, busts of Holmes, DVDs, chess sets, deerstalker caps, meerschaum pipes, tobacco tins, porcelain statuettes and salt and pepper shakers. For a weekday afternoon, business seemed brisk.

But it has not been a universal hit. In 1990 and 1994, scholar Jean Upton published articles in the now-defunct magazine *Baker Street Miscellanea* criticizing "the shoddiness of the displays" at the museum, the rather perfunctory attention to Holmesian detail (no bearskin rug, no cigars in the coal scuttle) and the anachronistic furniture, which she compared to "the dregs of a London flea market." Upton sniffed that Aidiniantz himself possessed only superficial

Fans of the brilliant, cocaine-addicted detective can trace his footsteps, as well as those of his creator, through modern London (clockwise from top: the Old Bailey courthouse, where Conan Doyle attended a trial; St. Bartholomew's Hospital, where Holmes and Dr. Watson meet; and Rules restaurant, where Conan Doyle is believed to have dined).



knowledge of the canon, although, she wrote, he "gives the impression of considering himself the undisputed authority on the subject of Sherlock Holmes and his domicile."

"I'm happy to call myself a rank amateur," Aidiniantz replies.

For verisimilitude, most Sherlockians prefer the Sherlock Holmes Pub, on Northumberland Street, just below Trafalgar Square, which is packed with Holmesiana, including a facsimile head of the Hound of the Baskervilles and Watson's "newly framed portrait of General Gordon," the

Holmes has enjoyed a stellar career on-screen (clockwise from top left: portrayed by Basil Rathbone, 1939; Jeremy Brett, 1984-94; John Cleese, 1973; Michael Caine, 1988; Robert Downey Jr. in the latest film version). All of the incarnations owe much to a real-life medical school professor, Dr. Joseph Bell, whose "eerie trick of spotting details" Conan Doyle never forgot.

British commander killed in 1885 at the siege of Khartoum and mentioned in "The Cardboard Box" and "The Resident Patient." The collection also includes Holmes' handcuffs, and posters, photographs and memorabilia from movies and plays recreating the Holmes stories. Upstairs, behind a glass wall, is a far more faithful replica of the 221B sitting room.

IN 1891, FOLLOWING the breakout success of *The Sign of Four*, Conan Doyle moved with his wife, Louise, from Southsea to Montague Place in Bloomsbury, around the corner from the British Museum. He opened an ophthalmological practice at 2 Upper Wimpole Street in Marylebone, a mile away. (In his memoirs, Conan Doyle mistakenly referred to the address as 2 Devonshire Place. The undistinguished, red-brick town house still stands, marked by a plaque put up by the Westminster City Council and the Arthur Conan Doyle Society.) The young author secured one of London's best-known literary agents, A.P. Watt, and made a deal with *The Strand*, a new monthly magazine, to write a series of short stories starring Holmes. Fortunately for his growing fan base, Conan

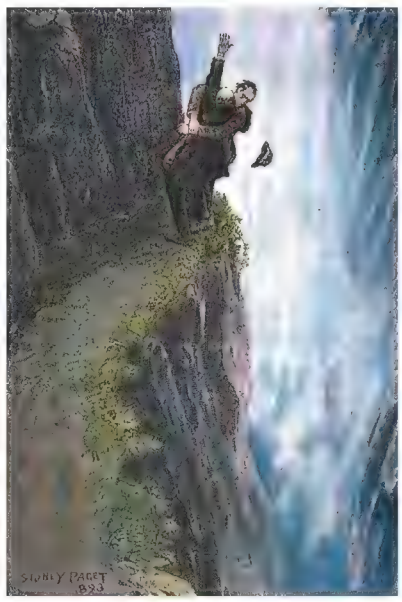
HOLMES IMAGES: EVERETT COLLECTION (2); BBC PHOTOGRAPH LIBRARY; EVERETT COLLECTION (2)

Doyle's medical practice proved an utter failure, affording him plenty of time to write. "Every morning I walked from the lodgings at Montague Place, reached my consulting-room at ten and sat there until three or four, with never a ring to disturb my serenity," he would later remember. "Could better conditions for reflection and work be found?"

Between 1891 and 1893, at the height of his creative powers, Conan Doyle produced 24 stories for *The Strand*, which were later collected under the titles *The Adventures of Sherlock Holmes* and *The Memoirs of Sherlock Holmes*. As the stories caught on, *The Strand*'s readership doubled; on publication day, thousands of fans would form a crush around London bookstalls to snap up the detective's latest adventure. A few months after arriving in London, the writer moved again, with his wife and his young daughter, Mary, to Tennison Road in the suburb of South Norwood. Several years later, with his fame and fortune growing, he continued his upward migration, this time to a country estate, Undershaw, in Surrey.

But Conan Doyle, a socially and politically active man, was drawn repeatedly back to the bustle and intercourse of

In 1893, Conan Doyle (below left: in 1912) dispatched Holmes at Reichenbach Falls (below right), but returned his detective to London (right: November 2009) in 1901. "They say that a man is never properly appreciated until he is dead," Conan Doyle wrote, "and the general protest against my summary execution of Holmes taught me how many and numerous were his friends."



London, and many of the characters and places he encountered found their way into the stories. The Langham, the largest and by many accounts best hotel in Victorian London, was one of Conan Doyle's haunts. Noted for its salubrious location on Upper Regent Street ("much healthier than the peat bogs of Belgravia near the River Thames favored by other hoteliers," as the Langham advertised when it opened in 1865) and sumptuous interiors, the hotel was a magnet for British and American literati, including the poets Robert Browning and Algernon Swinburne, the writer Mark Twain and the explorer Henry Morton Stanley before he set out to find Dr. Livingstone in Africa. It was at the Langham that Conan Doyle would place a fictional king of Bohemia, the 6-foot-6 Wilhelm Gottsreich Sigismond von Ormstein, as a guest. In "A Scandal in Bohemia," published in 1891, the rakish, masked Bohemian monarch hires Holmes to recover an embarrassing photograph from a former lover. "You will find me at The Langham, under the name of Count Von Kramm," the king informs the detective.

Another institution that figured both in Conan Doyle's real and imagined life was the Lyceum Theatre in the West End, a short walk from Piccadilly Circus. Conan Doyle's play *Waterloo* had its London opening there in 1894, starring Henry Irving, the Shakespearian thespian he had admired two decades earlier during his first London trip. In *The Sign of Four*, Holmes' client, Mary Morstan, receives a letter directing her to meet a mysterious correspondent at the Lyceum's "third pillar from the left," now another destination for Sherlockians. Conan Doyle was an active member of both the Authors' Club on Dover Street and the Athenaeum Club on Pall Mall, near Buckingham Palace. The latter served as the model for the Diogenes Club, where Watson and Holmes go to meet Holmes' older brother, Mycroft, in "The Adventure of the Greek Interpreter."

Although Holmes made his creator wealthy and famous, Conan Doyle quickly wearied of the character. "He really thought that his literary vocation was elsewhere," says Lycett, the biographer. "He was going to be somebody a bit like Walter Scott, who would write these great historical novels." According to David Stuart Davies,

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E.O. HOPPE / CORBIS; GRANGER COLLECTION, NEW YORK

who has written five Holmes mystery novels and two one-man shows about Holmes, Conan Doyle "wanted to prove that he was more than just a mystery writer, a man who made puzzles for a cardboard character to solve. He was desperate to cut the shackles of Sherlock from him," so much so that in 1893, Conan Doyle sent Holmes plummeting to his death over the Reichenbach Falls in Switzerland along with Professor Moriarty.

But less than a decade later—during which Conan Doyle wrote a series of swashbuckling pirate stories and a novel, among other works, which were received with indifference—popular demand, and the promise of generous remuneration, eventually persuaded him to resuscitate the detective, first in the masterful novel *The Hound of the Baskervilles*, which appeared in 1901, then in a spate of less well-regarded stories that he continued writing until he died of a heart attack in 1930 at age 71. In addition to the Holmes stories, Conan Doyle had written some 60 works of nonfiction and fiction, including plays, poetry and such science-fiction classics as *The Lost World*, and amassed a fortune of perhaps $9 million in today's dollars. "Conan Doyle never realized what he'd created in Sherlock Holmes," says Davies. "What would he say today if he could see what he spawned?"

LATE ONE MORNING, I head for the neighborhood around St. Paul's Cathedral and walk along the Thames, passing underneath the Millennium Bridge. In *The Sign of Four*, Holmes and Watson set off one evening on a "mad, flying manhunt" on the Thames in pursuit of a villain escaping in a launch. "One great yellow lantern in our bows threw a long, flickering funnel of light in front of us," Conan Doyle wrote. The pursuit ends in "a wild and desolate place, where the moon glimmered upon a wide expanse of marshland, with pools of stagnant water and beds of decaying vegetation." Today the muddy riverbank, with rotting wooden pilings protruding from the water, still bears faint echoes of that memorable chase.

I cross St. Paul's churchyard, wind through alleys and meet Johnson in front of the stately Henry VIII gate at St. Bartholomew's Hospital. Founded in 1123 by a courtier of Henry I, Barts is located in Smithfield, a section of the city that once held a medieval execution ground. There, heretics and traitors, including the Scottish patriot William Wallace (portrayed by Mel Gibson in the film *Braveheart*), were drawn and quartered. The square is surrounded by public houses—one half-timbered structure dates to Elizabethan times—that cater to workers in the Smithfield meat market, a sprawling Victorian edifice with a louvered roof where cattle were driven and slaughtered as late as the 1850s. In the hospital's small museum, a plaque erected by the Baker Street Irregulars, an American Holmesian group, commemorates the first meeting of Holmes and Watson in the now-defunct chemistry lab.

We end up in Poppins Court, an alley off Fleet Street, which some Holmes followers insist is the Pope's Court in the story "The Red-Headed League." In that comic tale, Holmes' client, the dim-witted pawnbroker Jabez Wilson, answers a newspaper ad offering £4 a week to a man "sound in body and mind" whose only other qualifications are that he must have red hair and be over 21. Wilson applies for the job, along with hundreds of other redheads, in an office building located in an alley off Fleet Street, Pope's Court. "Fleet Street," wrote Conan Doyle, "was choked with red-headed folk, and Pope's Court looked like a coster's [fruit seller's] orange barrow." The job, which requires copying out the Encyclopaedia Britannica for four hours a day, is a ruse to keep Wilson from his pawnshop for eight weeks—while thieves drill into the bank vault next door. Studying a 19th-century map of the district as the lunchtime crowd bustles past us, Johnson has his doubts. "I don't think Conan Doyle knew about Poppins Court at all, but it's very convenient," he says.

Conan Doyle, adds Johnson, "simply invented some places, and what we're doing is finding real places that could match the invented ones." Holmes' creator may have exercised artistic license with London's streets and markets. But with vivid evocations of the Victorian city—one recalls the fog-shrouded scene Conan Doyle conjures in *A Study in Scarlet*: "a dun-coloured veil hung over the house tops, looking like the reflections of the mud-coloured streets beneath"—he captured its essence like few other writers before or since.

PAINTED DREAMS

Rare artworks from an unsurpassed collection evoke the inner lives and secret rites of Australia's indigenous people

BY ARTHUR LUBOW

An art movement's origins usually can't be pinpointed, but boldly patterned Aboriginal acrylic painting first appeared at a specific time and place. In July 1971, an art teacher named Geoffrey Bardon distributed some brushes, paints and other materials to a group of Aboriginal men in the forlorn resettlement community of Papunya, 160 miles from the nearest town, Alice Springs. Bardon had moved near the remote Western Desert from cosmopolitan Sydney hoping to preserve an ancient aboriginal culture imperiled by the uprooting of Aboriginal people from their traditional territories in the 1950s and '60s. The men, who saw Bardon distributing the art supplies to schoolchildren, had a simpler aim: they were looking for something to do. Together they painted a mural on a whitewashed schoolhouse wall, and then they created individual works in a former military hangar that Bardon called the Great Painting Room. In 1972, with his assistance, 11 of the men formed a cooperative called Papunya Tula Artists. By 1974 the group had grown to 40.

Papunya Tula is now one of about 60 Aboriginal arts cooperatives, and Australian Aboriginal art generates nearly $200 million in annual revenues. It is not only the largest source of income for Aboriginal people but also, arguably, the most prestigious Australian contemporary art. Featuring bold geometric designs in earth tones, with characteristic circles, dots and wavy snakelike lines, Aboriginal acrylic painting appeals to Western collectors of both abstract and folk art. Prices have soared. A mural-size 1977 painting on canvas by the Papunya artist Clifford Possum established a record price for the genre when it sold in 2007 for $1.1 million.

Still, a special aura attaches to the first, small paintings, done on masonite boards usually less than 2 by 3 feet. Created before there was commercial interest, they benefit from the perception that they are more "authentic" than the stretched-canvas works that came later. It is hard to deny the energy and inventiveness of the early boards; artists used unfamiliar tools and materials to cover two-dimensional surfaces with designs they'd employed in ritualistic body painting or sand mosaics. They improvised, applying paint with a twig or the tip of a paintbrush's wooden handle. "The early period—you're never going to find anyplace where there's so much experimentation," says Fred Myers, a New York University anthropologist. "They had to figure everything out. There's an energy that the early paintings have, because there's so much excess to compress."

The first exhibition in the United States to focus on these seminal works—49 paintings, most of them early Papunya boards—recent-

At Papunya, near the Western Desert, Geoffrey Bardon (above: at right with Old Tom Onion in 1971) encouraged Aboriginal people to take up painting. An exemplar of the new form was *Mystery Sand Mosaic* (right), by Shorty Lungkarta Tjungurrayi. Its topic "remains a mystery," Bardon later wrote, though the four ovals near the bottom are "ceremonial objects or sacred sticks used in ceremonies."

P. 66 ALLAN SCOTT / GEOFFREY BARDON COLLECTION; PP. 66-67 COLLECTION OF JOHN AND BARBARA WILKERSON

ly appeared at New York University, following showings at Cornell University and the University of California at Los Angeles. The paintings are owned by John Wilkerson, a New York City-based venture capitalist in the medical field, and his wife, Barbara, a former plant physiologist. The Wilkersons collect early American folk art and first became enamored of Aboriginal work when they visited Australia in 1994. "We both thought, 'We don't like this—we *love* it,'" Barbara recalls. "We just liked everything." With the help of a Melbourne-based gallery owner, they soon concentrated on the earliest paintings.

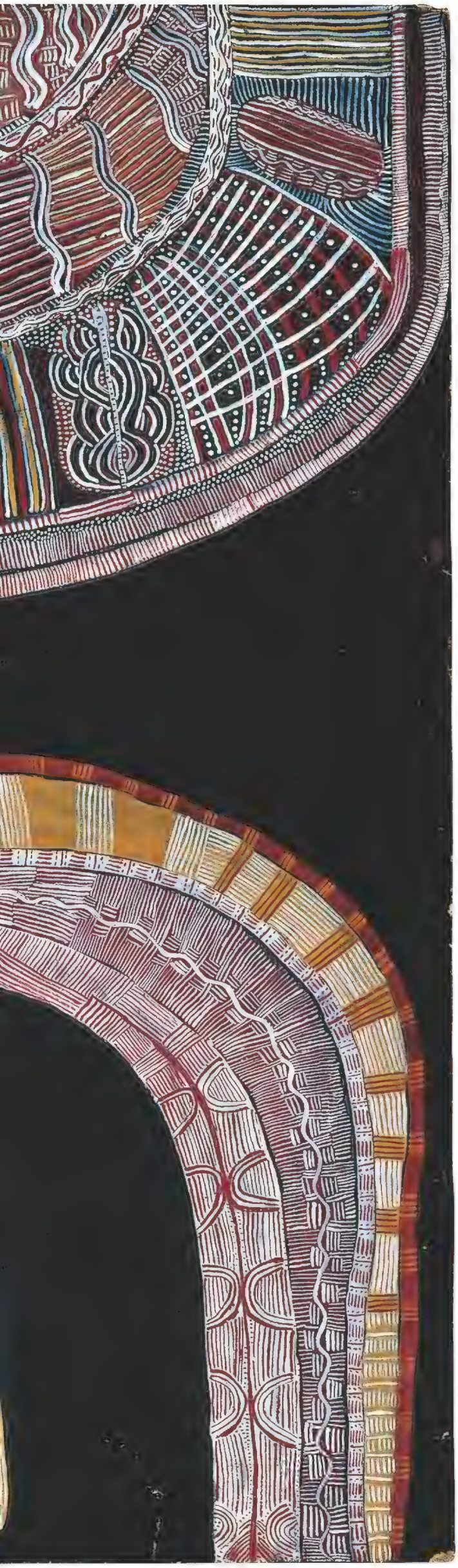
The Wilkersons' costliest board was the 1972 painting *Water Dreaming at Kalipinypa*, a dazzling patchwork of stippled, dotted and crosshatched shapes, bought in 2000 for some $220,000—more than twice the price it had been auctioned for only three years earlier. The painting was done by Johnny Warangkula Tjupurrula, an original member of the Papunya cooperative and one of its most celebrated. Sadly, the artist himself had long been overlooked; in 1997, an Australian journalist found Warangkula, by then old and homeless, sleeping along with other Aboriginal people in a dry riverbed near Alice Springs. Though he reportedly received less than $150 for his best-known painting, the publicity surrounding the 1997 sale revived his career somewhat and he soon resumed painting. Warangkula died in a nursing home in 2001.

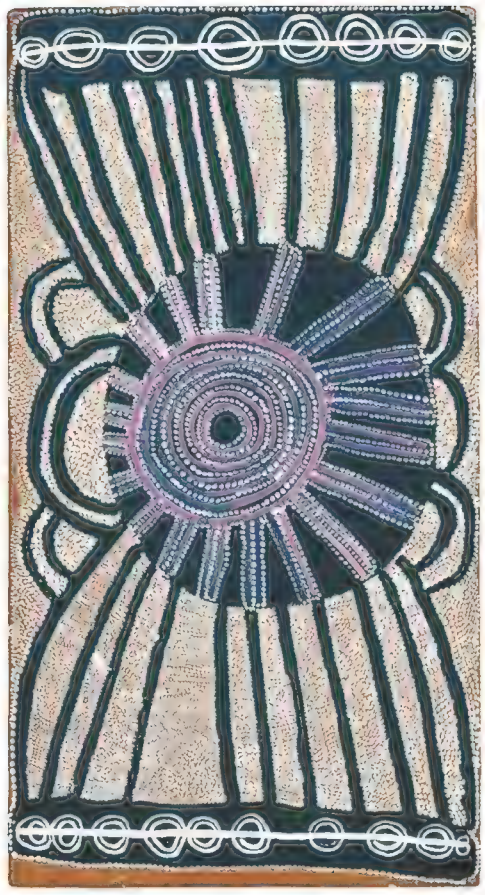
Though the Aboriginal art movement launched in Papunya is just four decades old, it's possible to discern four periods. In the first, which lasted barely a year, sacred practices and ritual objects were often depicted in a representational style. That was dangerous: certain rituals, songs and religious objects are strictly off limits to women and uninitiated boys. In August 1972, an angry dispute broke out at an exhibition in the aboriginal community of Yuendumu over explicit renderings in Papunya paintings. Some community members were offended by the realistic depictions of a wooden paddle swung in the air to produce a whirring sound in initiation ceremonies that are hidden from women and children.

In response to the furor, artists began to avoid forbidden images or conceal them under dotting, stippling and crosshatches. So began the next period. A forerunner of that style, painted around August 1972, is *Water Dreaming at Kalipinypa*, in which Warangkula's elaborate veilings acquire a mesmerizing beauty that relates to the symbolic theme of raindrops bringing forth the vegetation stirring below the earth.

"I think the older men love playing with almost showing you," Myers says. It's not just a game. These paintings mirror traditional ritual practice; for example, in one initiation ceremony, adolescent boys whose bodies are painted in geometric or dotted patterns appear before women at night through a scrim of smoke, so the designs can be glimpsed but not seen clearly. "You have people who already have a tradition of working with concealment and revelation," Myers says.

New York City-based freelance journalist **ARTHUR LUBOW** *last wrote for* SMITHSONIAN *about China's terra cotta soldiers.*





"We just liked everything," collector Barbara Wilkerson (below right: with husband John) recalls of their first glimpse of Aboriginal art. In *Big Cave Dreaming with Ceremonial Object* by Mick Namararri Tjapaltjarri (left), the top half suggests plants, rocks and geological strata, while the bottom is thought to show a cave where men (U-shapes) gather around a ritual object (gold rod). *The Trial* (above) by Charlie Tarawa Tjungurrayi is believed to symbolize the sentencing of a territorial intruder by other men (white circles). The central oval in Uta Uta Tjangala's *Ceremonial Story* (right) bears markings like those in traditional sand paintings; another oval depicts a snake.

COLLECTION OF JOHN AND BARBARA WILKERSON (2); MAX S. GERBER; PP. 68-69 COLLECTION OF JOHN AND BARBARA WILKERSON

In the third period, the art found a commercial market with acclaimed, large-scale canvases in the 1980s. And the fourth period, roughly from the 1990s to the present, includes lower-quality commercial paintings—disparaged by some art dealers as "dots for dollars"—that slake the tourist demand for souvenirs. Some painters today lay down geometric, Aboriginal-style markings without any underlying secret to disguise. (There have even been cases of fake Aboriginal art produced by backpackers.)

Still, much fine work continues to be produced. "I'm very optimistic, because I think it's amazing that it has lasted as long as it has," Myers says. Roger Benjamin, a University of Sydney art historian who curated the exhibition, "Icons of the Desert," says gloomy predictions of the late '80s have not been borne out: "Fewer and fewer of the original artists were painting, and people thought the movement was dying out. That didn't happen."

One striking change is that many Aboriginal painters today are women, who have their own stories and traditions to recount. "The women painting in Papunya Tula now tend to use stronger colors and—especially the older ladies—are less meticulous," Benjamin says.

Though seemingly abstract, the multilayered paintings reflect the Aboriginal experience of reading the veiled secrets of the hostile desert—divining underground water and predicting where plants will reappear in the spring. According to Aboriginal mythology, the desert has been marked by the movements of legendary ancestors—the wanderings known as Dreamings—and an initiate can recall the ancestral stories by studying and decoding the terrain. "In the bush, when you see somebody making a painting, they often break into song," Benjamin says. They're singing the Dreaming stories in their paintings.

The Wilkersons' original plan to exhibit paintings in Australian museums fell through after curators feared that Aboriginal women or boys might be exposed to sacred imagery. Aboriginal community members also decreed that nine reproductions could not be included in the exhibition catalog. (The American edition contains a supplement with the banned images. SMITHSONIAN was not granted the right to publish any of them.)

While Western art collectors may value the works according to how well they were executed, Aboriginal people tend to rank them by the importance of the Dreaming in them. "White people can't understand our painting, they just see a 'pretty picture,'" the Papunya artist Michael Tjakamarra Nelson once remarked.

Some of the imagery in the exhibition is comprehensible to informed outsiders, while some is ambiguous or completely opaque. For many Western spectators, the secret religious content of the paintings—including, in the early boards, images said to be fatal to uninitiated Aboriginal people—only adds to their appeal. Like much geometrically ordered art, Aboriginal painting is beautiful. Tantalizingly, it also exudes mystery and danger.

COLLECTION OF JOHN AND BARBARA WILKERSON (2); MICHAEL JENSEN

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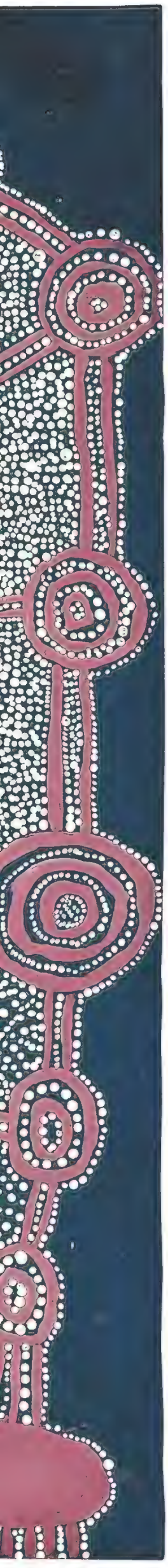

Johnny Warangkula Tjupurrula (left: at right in the Great Painting Room in 1972 with Charlie Tarawa Tjungurrayi) veiled his meaning with myriad patterns in *Water Dreaming at Kalipinypa* (above), bought by the Wilkersons in 2000 for some $220,000. It's said to represent an ancestral desert site where rainwater collects, plants thrive and foods such as "wild raisins" (black specks) are found. *Medicine Story* by Uta Uta Tjangala (opposite) is thought to draw on a legend about a sorcerer (lying down at the bottom) who went astray, possibly with his mother-in-law, and whose penis (vertical phalluses) and testicles (circles) went on their own "walkabout" journey.

Otto Wolf readies meats for the smoker at the Glasbrenner Butchery, a shop near Stuttgart owned by one of a dwindling number of master butchers in Germany.

WURST CASE SCENARIO

AS GERMANS TURN TO AMERICAN-STYLE SUPERMARKETS, THE LOCAL BUTCHER—A FIXTURE IN THEIR SAUSAGE-HAPPY CULTURE—IS PACKING IT IN

BY ANDREW D. BLECHMAN

PHOTOGRAPHS BY
ANDREAS TEICHMANN

When it comes to animal protein, the German language is lacking in euphemism. Meat is "flesh," hamburger is "hacked flesh," pork is "pig flesh" and uncured bacon is "belly flesh," as in, "Could you please pass me another slice of flesh from the pig's belly?"

A favorite children's food, a bologna-like luncheon meat, is called by the curious term "flesh sausage." No family visit to the meat counter is complete without a free slice of "flesh sausage" rolled up and handed to a smiling youngster in a stroller. Few things put me in a pensive mood like hearing my daughter cry out in delight, "Flesh, Papa! I want more *Fleisch*!"

While I've grown accustomed to the culinary bluntness of the German language after living here for a few years, I still wince at the coarseness of the cuisine itself. I find certain traditional meat dishes difficult to stomach, such as *Eisbein*, a boiled pig's knuckle the size of a small meteorite served with a thick, fatty layer of rubbery skin and protruding leg bone. Or *Saumagen*, former Chancellor Helmut Kohl's favorite dish, which is reminiscent of that Scottish favorite, haggis. Imagine all sorts of meats and vegetables sewn into a pig's stomach and boiled—unless you'd rather not. Then there's the dish known to induce cravings along the lines of the American yen for White Castle burgers. It's called *Mett*, and Germans will eat it for breakfast, lunch, an afternoon snack during a hard day of labor or to satisfy a late-night longing.

Mett is finely ground raw pork sprinkled with salt and pepper, spread thickly across a split roll, or *Brötchen*, like an open-faced sandwich, and topped with diced onion. I could swear I've seen it topped with a sprinkling of fresh, minced parsley, but my wife, Erika, who is German, assures me such couldn't be the case because that—*that*—would be gross. She doesn't eat Mett often—I've never seen her consume it in seven years of marriage—but when the topic comes up, I've heard her make an uncharacteristic lip-smacking noise followed by, "Mmm, yummy, yummy."

Consuming raw pork is hardly imaginable in America, where we typically boil precooked hot dogs "just in case" and cook our pork chops until they're rubbery. Given its checkered history with parasites that cause trichinosis, pork is forever suspect. The U.S. Centers for Disease Control and Prevention recommends cooking pork to an internal temperature of 170 degrees; commercial kitchens are required to.

Eating raw pork requires a leap of faith we see in few countries outside of Germany, where the nation's butcher profession has been held in high regard for more than seven centuries. Germans know they can trust the quality of their meat.

GRANTED, I'M A QUEASY EATER. I prefer meat masquerading as nuggets to a platter of tongue with its paisley swirl of taste buds. But one day, in an adventurous spirit, I ordered a Mett Brötchen at a popular outdoor café nestled in the shadow of Aachen's Kaiserdom, Charlemagne's imperial cathedral, which he built more than 1,200 years ago. The glistening pink marbled meat looked a bit like raw packaged hamburger, but shinier and more delicate, ground to the consistency of angel-hair pasta. As I brought the meat toward my mouth, I instinctively closed my eyes, then took a bite and boldly toyed with it atop my tongue. The texture was not at all sinewy, but rather soft, almost like baby food; the flavor was decidedly savory, with a welcome tang of onion.

Later that night, flushed with pride, I related my heroic attempt at culinary assimilation to Erika and her mother as we snacked on cold cuts and buttered bread—a common German evening meal. My mother-in-law's eyes widened as she pursed her lips. Then silence.

"You didn't buy it directly from a butcher?" Erika finally asked.

"Well, no, but I ordered it from one of the finest cafés in town."

She grimaced. "When you eat Mett, you don't want there to be a middleman."

I spent the rest of the night in bed contemplating the irreversible nature of digestion.

Butchers were esteemed because meat was prized and required skill to cut safely (above: a 16th-century painting).

ALTHOUGH ERIKA AND HER mother will buy meat only from a butcher—and a butcher whose meat comes from a nearby farm—the majority of Germans no longer have such inhibitions. Freezers that used to be the size of shoe boxes, but were well suited to frequent visits to neighborhood butchers and markets, have been replaced with freezers big enough to hold several weeks' worth of groceries bought at American-style supermarkets. In Germany, the shunning of local butchers amounts to the repudiation of a cultural heritage.

German butchers are fond of pointing out that, while their profession may not be as old as prostitution, it dates

JOACHIM BEUCKELAER, *THE BUTCHER SHOP* / MUSEO NAZIONALE DI CAPODIMONTE, NAPLES / ALINARI / ART RESOURCE, NY; ALL PHOTOS BY ANDREAS TEICHMANN / REDUX / LAIF

Third-generation butcher Axel Schäfer is a recent convert to vegetarianism who still prepares some meats at his Düsseldorf shop (top: meatballs). These days his kitchen duties (bottom row) include the making of vegetable soups to feature on his lunch menu.

back at least to biblical times, when temple priests honed their slaughtering and meat-cutting skills while sacrificing animals at the altar. In recognition of this, the emblem of the German butcher profession was once the sacrificial lamb. One of the earliest historical mentions of sausage comes from Homer's *Odyssey*—grilled goat stomach stuffed with blood and fat—but it is Germany, with its 1,500 varieties of *Wurst*, that is the world's sausage capital.

Germans, blessed with a temperate climate and abundant pastureland, have always eaten a lot of meat, and sausage is a natural way to preserve every scrap of an animal. The frankfurter—America's favorite sausage—was indeed invented in the city of Frankfurt in the late 15th century. (Austria lays claim to the virtually identical *Wiener*, which means "Viennese" in German.) Bismarck was such a fan of the sausages that he kept a bowl of them on his breakfast table. Then, as now, frankfurters were prized for their finely minced pork, dash of nutmeg and—since the 19th century—pickle-crisp bite, a tribute to sheep's-intestine casings.

The *Bratwurst*, a favorite of Goethe's, can be traced at

least as far back as the 15th century, when the Bratwurst Purity Law outlawed the use of rancid, wormy or pustulated meat. These days Bratwursts are generally served at food stands, where they are mechanically sliced into medallions, smothered with a sweet, rust-colored condiment called "curry ketchup" and sprinkled with bland curry powder. When not eaten as *Currywurst*, a long, uncut Bratwurst is placed in a bun comically small for the task.

Currywurst is about as adventurous as German food gets, at least in terms of seasonings, which more typically consist of pickling spices and caraway seeds. For the longest time, Germans viewed foreign gastronomy with a mixture of suspicion and envy. Garlic wasn't successfully introduced to the German palate until the 1970s, with the arrival of guest workers, and Italian and other Mediterranean foods didn't gain in popularity until the late '80s. As far as embracing the legendary brilliance of French cuisine, the border between the two nations is apparently more porous to armored tanks.

"Meat is meat," says Gero Jentzsch (right) of the German Butchers Association, "but sausage carries the culture" (left: a market in Frankfurt). Even so, he notes, butchers must broaden their businesses—by catering, for example, or opening cafés—to survive.

In many ways, German food hasn't changed much since the days of Tacitus, who described it as "simple." At its core, German cuisine is comfort food (usually pork) meant to stick to one's ribs. Eating isn't a very sensuous affair: a meal is served all at once and not so much savored as consumed. At first I thought it was just one of my wife's endearing quirks; then I noticed that her friends are just as likely to finish a meal before I've emptied my first glass of wine.

When ordering meat in a restaurant, I've never been asked how I'd like it done. Apparently, there is no German equivalent for "medium-rare." More than once I've pulled a leathery roast crusted with creosote out of my mother-in-law's oven, only to be asked to slice it through the middle to ensure that it's fully cooked.

THEY SAY FOOD OPENS THE DOOR to one's heart, but it also provides entry to, and, more important, an understanding of, one's culture. This is particularly resonant in Germany, where the post-World War II generations have actively discarded symbols of their notorious past. But while three Reichs have come and gone, German food remains stubbornly traditional. At its heart has always been the butcher.

When my alarm goes off at 3 o'clock on an icy-dark winter morning, the absurdity of my rising so early begins to sink in—the last time I can remember waking at this hour was when I heard a bear rummaging outside my tent. But this is when most butchers get their work done, including Axel Schäfer, the 49-year-old, third-generation butcher down the street from our apartment in Düsseldorf, who has invited me to make sausages with him.

Axel, who has already been at work for the better part of an hour, meets me at the entrance to his family's 80-year-old butchery dressed for action in heavy white overalls, a thick rubber apron and knee-high white rubber boots. Although he greets me with a smile, I find the thickness of the apron and the height of the boots somewhat unnerving.

Not only does Axel sense my ambivalence, he shares it: he is a recent convert to vegetarianism. Axel can't afford to quit handling meat altogether—he has a family to support—but he has already stopped selling pâté from fattened goose livers and now offers customers an alternative to his homemade sausages: a lunch buffet for "nonjudgmental vegetarians."

Axel stumbled across his new diet when the stress of 90-hour workweeks in a declining market frayed his nerves. A desperate visit to a nutritionist and a life coach resulted in an examination of his diet and profession, which he feels was partly foisted upon him by his family. "I felt like I was dying," Axel says. "The pressure was killing me."

At first, he couldn't even bring himself to eat vegetables—too foreign—so his nutritionist recommended he try vegetable juice. "The only way I could drink it was to pretend it was soup," Axel says. "I placed it in a jar and warmed it in the kettle with the sausages. But the more vegetables I ate, the better I felt. I no longer feel well when I eat meat." Axel lost 45

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pounds, giving him a trim appearance, even if the weight loss did accentuate his already elastic, sad-dog cheeks.

His rubber boots squeal as we step across the tiled threshold separating the front of the store from "the jungle" beyond. I expect to see employees lugging sides of beef to and fro in anticipation of the work ahead, but Axel works alone. Automation makes that possible, but there's more to it than that.

"In my grandfather's day, this room was packed with a dozen employees and apprentices," Axel explains. "I only do a fraction of the business he did. Of the 40 butchers in Düsseldorf, maybe 7 make good money. Butchers go out of business all the time. I have a friend who makes more money baking gourmet dog biscuits."

Mere decades ago, to see a butcher struggling in Germany, let alone converting to vegetarianism, would have been unthinkable. When Axel's father contemplated medical school, Axel's grandfather scoffed at the idea: a doctor's income was less reliable. But industry statistics bear out

At the Glasbrenner Butchery, tradition holds: (from left) employee Markus Wolf divides a leg of beef; hamburger (*Hackfleisch* in German) comes out of the grinder; sausage meat is packed into natural casings; and Otto Wolf displays smoked sausages.

Axel's grim pronouncement. There were 70,000 butchers in Germany in the 1970s; now there are 17,000, with 300 to 400 dropping out or retiring every year.

Even if Axel could afford employees, they'd be hard to come by, given the grueling hours, physically demanding and messy work and the decline in business. Axel's own two children have little interest in following their father's profession. Butcher shops that were once neighborhood fixtures now simply board up their windows and close. Another demoralizing development is the increasing number of regulations from the European Union regarding meat preparation, which favor large operations.

Nor does it help that Germans are eating less red meat. Meat consumption per person has dropped 20 pounds in 20 years, to a bit more than 100 pounds, with the citizens of France, Spain and even Luxembourg now eating more meat per capita than Germans. Even though Hitler was its most famous advocate, vegetarianism continues to grow in popularity.

We arrive in a windowless white room at the far end of the building filled with several large stainless-steel machines, prep tables and the cauldron where Axel once heated his vegetable juice. One of the prep tables is crowded with bread tins filled with uncooked loaves of *Fleischkäse*—a goopy pink purée of meat and cheese, which, when finished, will resemble a meatloaf of sorts.

He enters a walk-in cooler and returns lugging a five-gallon steel container of the sort one finds at a dairy.

"What's that?" I ask.

"Blood."

Axel begins feeding ingredients into the sausage-mixing machine's doughnut-shaped trough. First in are leftover cold cuts from the front display case. He then fishes out ten pounds of raw livers from a bag containing twice that amount and slips them into the trough. He pulls a large steaming colander filled with boiled pigskins from the kettle and pours the pale gelatinous mass (used to help bind the ingredients) into the trough. He sprinkles in a bowl of cubed lard as the machine spins and shreds its contents. Axel runs his machine at a lower, quieter speed out of deference to his neighbors, many of whom are less than thrilled to live next door to Sweeney Todd. Moments later, the mixture is a porridge the color of sun-dried tomatoes.

Axel tilts the bucket of blood into the trough until it is filled nearly to the rim. The vibrant, swirling red mass continues to churn; the aroma is earthy and sweet, like ripe compost. With a look of resignation, he adds the flavor enhancers sodium nitrate and monosodium glutamate, which quickly turn the mix a brighter red. "I tried stripping the MSG and food coloring from the sausages, but they weren't very popular," he says. "Claudia Schiffer without the makeup doesn't sell."

The mixture ready, Axel uses a pitcher, and later a squeegee, to scoop it into a white tub. "You can taste it if you'd like," he offers, and then dips his finger in the batter and puts it in his mouth. I decline. "We sell more *Blutwurst* than anything else," Axel tells me. "We're known for it." A favorite Düsseldorf breakfast, *Himmel und Ähd* (Heaven

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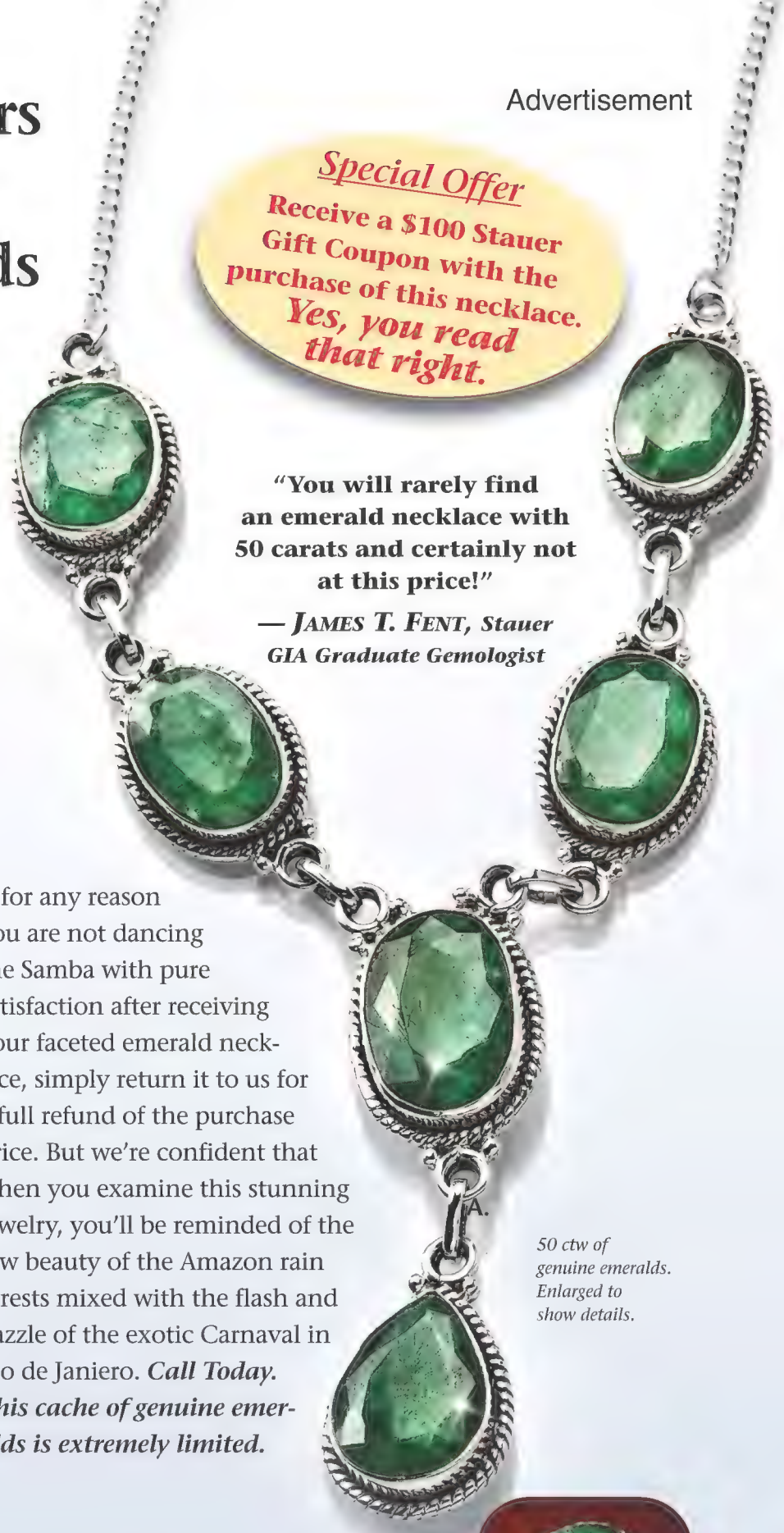

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and Earth), consists of pan-fried blood sausage topped with mashed potatoes, applesauce and fried onions.

Axel unfolds 15 feet of a cow's slippery intestinal membrane atop a prep table and then pours the sausage mixture into the funnel of a machine that pushes the mush through a tapered nozzle with the help of a foot pedal. He fills up two feet of gut at a time, twists it in the middle like a clown tying a balloon, then brings the two ends together and fastens the membrane with a heat-sealing machine, so the sausage forms a classic ring with two links. He plunks the sausage into the outsize kettle to cook. Axel works with a repetitive exactitude that borders on automated precision: pedal, squirt, twist, seal, plop. Next.

Axel ties up the last ring of sausage and tosses it into the kettle, then sets about disinfecting the kitchen with spray foam. He pauses in front of the sausage trough. "If you start thinking about it, there has been a lot of death in this machine," he says. "Feelings like that aren't really allowed here. If I allowed myself to turn the switch on and see everything at once, I might as well put a gun to my head. But it still pains me when I see a very small liver, because I know that it came from a baby animal." Axel's eyes grow red and watery. "You can say this is ridiculous—a butcher who cries at the sight of a liver." He then paraphrases the writer Paulo Coelho's line: "When we least expect it, life sets us a challenge to test our courage and willingness to change."

With the last trace of blood hosed down the drain, Axel's mood lightens. He puts on a cloth apron, reaches into the cooler and pulls out carrots, potatoes, cabbages and several packages of tofu for today's casserole. We sharpen our knives and attack the carrots first.

"People might think it's funny for a butcher to be vegetarian, particularly in Germany, where everything is so regimented," he says. "But we live in the modern world and we have more options than before. For me it's a question of tolerance. This has not been an easy transition for my wife, Dagmar, and me. We are like Hansel and Gretel holding hands in the forest."

Axel walks back to the refrigerator and pulls out leftovers from yesterday's vegetarian offerings: a zucchini, leek and tomato quiche. "I am teaching myself to be a vegetarian cook. It is all learning by doing."

He hands me a spoonful of the quiche. It's delicious.

I AM WHIZZING TOWARD STUTTGART on a high-speed train with Gero Jentzsch, the plucky 36-year-old spokesman for the German Butchers Association. "If you look at the number of butchers leaving the profession each year, it's like a countdown that can't be stopped," Gero tells me in impeccable English. "I imagine the hemorrhaging will stop when there are 8,000 to 10,000 left and the profession rediscovers its position in the marketplace. Where else are you going to go for high-quality meats and artisan sausages?"

I had spoken by phone with Gero two weeks earlier, trying to put Axel's struggle and the rapid decline of Germany's most iconic profession into context. "A vegetarian butcher, eh?" Gero had said. "Well, it's an interesting business model for a challenging time. Most butchers are branching out into catering, cafés or organic products—so-called 'green meat.' Everyone must specialize if they want to survive. I guess selling vegetables is one way to do that. We could all use more balance in our diet, and I know plenty of overweight butchers who might benefit from eating more vegetables. But I have a feeling it means we've lost yet another butcher."

To gain a better understanding of the history of the profession, Gero had recommended a visit to the German butchers museum in a village near Stuttgart. An ardent medievalist who, when he can, spends weekends in drafty castles dressed in artfully tailored period costumes, Gero speaks excitedly about the museum's collection of ornate treasure chests, which played a prominent role at secretive and highly ritualized candlelit gatherings of the medieval butchers' guilds.

"It's difficult to overemphasize the critical role the master butcher has played in Germany's cultural heritage," he tells me. "France has its cheese and

cheese makers; Germany has its sausages and sausage makers."

Throughout our conversation, Gero draws a distinction between meat and sausage, which I had always thought of as one and the same. "Meat is meat," Gero explains, "but sausage carries the culture."

Sausage permeates German culture at nearly every level, much like rice in China. The German language is peppered with sausage sayings, such as *Es ist mir Wurst*—"It's sausage to me." ("It's all the same to me.") And while Richard Wagner worked passionately with mythical Germanic archetypes in his dramatic operas, the average German is less likely to feel a connection to Lohengrin, Siegfried or Brunhild than he is to a far more popular theatrical legend: Hans Wurst, the pants-dropping wiseacre who once dominated hundreds of German plays.

"Sausages are recipes, and these recipes reflect who we are," Gero adds. "In the North, [people] have always been closely linked to the sea, so it's not surprising that they eat sardine sausages. Bavaria has always been a conservative region heavily tied to the land. They tend to eat very traditional sausages that use more parts of the animal. For example, *Sülze*, a jellied sausage made with pickles and flesh from a pig's head, that has a crisp, sour taste.

"But these days tradition counts less than appearance. It's mainly pensioners who continue to buy their sausages from the butcher rather than the supermarket, because they know the difference; younger people never learned the habit. Children today prefer sausages with smiley faces or animal designs, something no German butcher can do by artisanal means."

Traditional butchers put a lot of care into the appearance of their sausages. Every sausage has its traditional size and shape, and butchers also make sausages with fancier designs for special occasions. Slices of tongue might be arranged into a star or clover pattern, for example, with a blood-red background of well, blood, which is then sprinkled with tiny white lard cubes, thus producing a sort of starry-night effect. But such craft today pales in popularity with mass-produced, two-toned sausages extruded and molded into animal shapes with paws and smiley faces. One favorite—"little bear sausage"—even has matching children's books and board games.

Gero and I are picked up at the Stuttgart train station by a distinguished-looking gentleman named Hans-Peter de Longueville, who is the local representative of the butchers' association. He drives us out of the valley and into the hills beyond, where we soon arrive in the little village of Böblingen, next door to the world headquarters of Mercedes-Benz.

An elderly docent wearing a coat and tie greets us in front of a 16th-century Tudor-style building housing the butchers museum. He shakes my hand and stands at attention, awaiting direction from Herr de Longueville. I sense my visit has ignited a degree of excitement. That anyone, let alone an Ameri-

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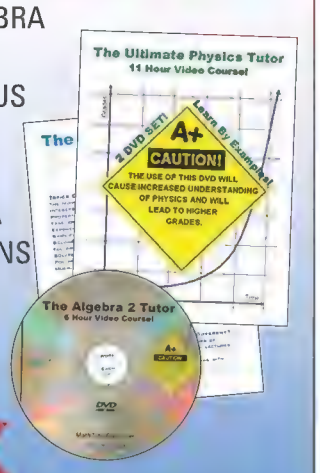
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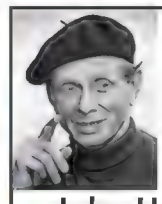

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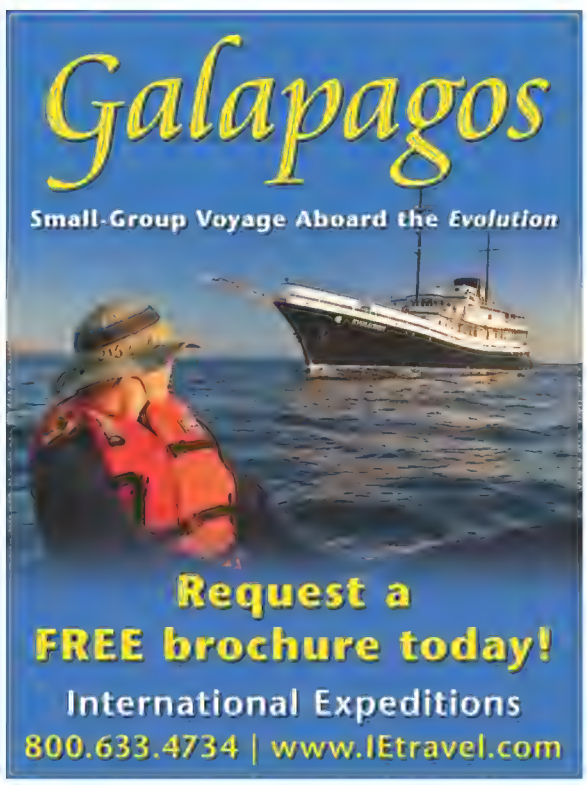

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can writer, would want to delve so deeply into butchering has clearly awakened a certain amount of pride. All three men possess an extensive knowledge of butchering, but few outside the industry are interested in hearing what they have to say. I'm the red meat they've been waiting for.

I am ushered into the first exhibit hall, which is filled with historical equipment arranged into make-believe period butcher shops, beginning with the Middle Ages and ending with the early 20th century. Apparently, early butchering gravitated toward a form of gigantism. Everything is huge: knives are swords, scales are the size of Lady Justice herself and cash registers weigh hundreds of pounds.

In front of the 19th-century display is a hefty butcher block that appears severely warped. Atop it rests a tool with three crescent-shaped blades used to mince meat with the aid of two men. The docent grabs one end and demonstrates its seesawing motion. Meat workers sang songs and danced a sort of jig while mincing, like sailors raising sails on a clipper ship. When I join the docent at the other end of the mincer, I am surprised by the weight of the tool, which explains the table's deeply uneven surface. This is what it took to mince meat for sausage or hamburger at the start of the Industrial Revolution.

Peasants began flocking to cities a thousand years ago. Urbanization demanded specialization, which led to the formation of the four primary guilds—butchers, bakers, shoemakers and cloth-makers—and the beginnings of a bourgeoisie that would one day threaten monarchical rule. Among tradesmen, the butcher held a place of honor. Meat, the most prized of foods, is also the most difficult to handle.

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sharp and deadly—butchers were known as *Knochenhauer*, or bone-hackers—they were granted permission to carry swords and often placed in charge of a city's defenses. They also made frequent trips to the countryside to purchase cattle, sometimes delivering written correspondence along the way for a fee, which eventually led to the formation of Germany's first mail service, called the *Metzgerpost*, or "butcher post."

Until an 1869 law weakened the guild system, the butchers guild exercised total control over the profession—deciding, for example, who could become a butcher and what one could charge for a cut of meat or sausage. Acceptance into the guild was the medieval equivalent of becoming a made man. The profession survived the Industrial Revolution and though it has had its share of difficulties—if it took a wheelbarrow of reichsmarks to buy a loaf of bread during the Weimar Republic, imagine how many it took to buy a roast—it wasn't until the rise of supermarkets in the early 1980s that the profession went into a tailspin.

HERR DE LONGUEVILLE has arranged a special lunch at the nearby Glasbrenner Butchery, featuring local sausages prepared by a master butcher. Once seated, Herr de Longueville sets the stage by explaining the three main categories of sausage: "boiled" (think hot dogs), "raw" (smoked or air-dried, like salamis) and "cooked." The last is a bit more difficult to explain, but it's basically a sausage containing already-cooked meats. Although I have little experience with such sausages, from what I can tell they're the ones with names like "headcheese," whose casings are filled with the sort of things a delicate eater like me studiously avoids.

Moments later, the butcher's wife arrives at our table carrying a "slaughter plate"—an oversize platter brimming with cold cuts selected for my enjoyment and edification—and places it directly in front of me. Herr de Longueville, the docent and the butcher's wife gaze at me in anticipation. Gero, who is aware of my culinary

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timidity, smiles hesitantly.

I don't recognize any of the sausages. At least there's no liverwurst, the smell of which nauseates me. I'm told that the gelatinous, speckled sausage slices before me include the following ingredients: blood, head flesh, gelatin, lard, tongue, tendon (for elasticity), skin and something that my hosts have difficulty translating. They eventually settle on "blood plasma."

"Oh, you've eaten it all before—you just didn't know it," Gero says. "If you think about it, a steak is just a piece of a cow's buttocks."

The muscles around my throat begin to feel tender to the touch. "Is there any mustard?" I ask.

Once I've sampled each sausage, the slaughter plate is removed. Moments later, the butcher's wife returns with another platter, filled with a dozen varieties of liverwurst. I politely wipe away the bead of sweat now forming on my upper lip.

Next comes the *Maultaschen*, layered dumplings particular to this region of Germany that resemble compressed lasagna, followed by cutlets of meat in a light broth.

"What's this?" I ask.

The docent taps his jawbone. Gero explains: "Castrated ox cheeks."

BACK IN DÜSSELDORF, my neighbors are waiting in silent anticipation for our local supermarket to reopen after a month-long remodeling. When it does, I walk over with my daughter to see what the fuss is all about. Aside from new shelving and brighter lighting, the first thing I notice is the expanded meat section. The refrigerated shelves are filled with a wider variety of mass-produced sausages, along with more traditional types, like tongue sausage, aimed at the older, butcher-loyal generations. There are organic meats and sausages in bright green packaging, as well as a line of sausages from Weight Watchers advertising "reduced fat!" There's even nitrogen-packaged Mett with a one-week expiration date.

My daughter is attracted to the bear-shaped sausage, but I decline to

buy it because we tend not to eat that sort of thing. We shop for fresh food several times a week, buying bread at the bakery, meat from the butcher and fruits and vegetables from the greengrocer or the weekend farmers market. Erika is so demanding about quality that I feel sheepish about entering a supermarket for anything other than paper products or canned goods.

There is also an expanded butcher counter and display case, where one can have meats sliced to order. Although I hardly have the stomach for more sausage after my trip south, journalistic duty compels me, so I ask for a taste of the "house salami." It looks like a butcher's salami, but when I bite into it, it's greasy and bland. I ask the woman behind the counter who made it. She doesn't know. "Can you tell me where it was made?" She can't.

It's a phenomenon that I've grown accustomed to in the United States: food that looks like food but lacks flavor. And whereas a master butcher knows exactly where his meat comes from, supermarket meat in Germany now travels from industrial farms and slaughterhouses all across Eastern Europe. Ultimately, a butcher proudly stands behind his quality; the supermarket worker may or may not take pride in his job, let alone have a master's knowledge of it. The worker behind the meat counter could just as easily be stocking shelves.

Still, Germans by and large continue to overlook their remaining master butchers. There are now entire generations of Germans who can't taste the difference between a handcrafted sausage and a mass-produced one.

That a squeamish foreigner should grieve for German butchers may seem odd. But for me, it's about the loss of quality craftsmanship. Sadly, butchers aren't getting help even locally. The city of Düsseldorf recently closed its slaughterhouse because it was deemed unseemly, opting to replace it with luxury housing. Meat is now shipped to butchers from regional suppliers.

I have little interest in buying "flesh sausage" for my daughter at the super-

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market, so I walk over to Axel's instead. It's been a few weeks since we've bought meat, and to my surprise, Axel's shop is in the midst of its own makeover. The large menagerie of life-size farm animals that graced the store's marquee for decades is gone. A Tibetan flag hangs from one of Axel's upstairs windows, lending the otherwise drab building the air of a college dormitory. In the entryway, framed copies of jackets for Paulo Coelho's books line the walls, and a cup filled with brochures advertises Axel's newest passion: shiatsu massage. The brochures feature a photo of Axel dressed in his white overalls, but minus his rubber apron and boots, applying pressure to the spine of a prone human figure.

Axel greets us from behind the meat counter, but gently guides us away from the sausages (which he no longer makes, but buys from a nearby butcher) and toward the steam tray filled with today's vegetarian offerings: pasta with mushrooms, lentil soup, spinach quiche and a casserole with steamed veggies and smoked tofu. Axel hands my daughter a spoonful of the casserole. She likes it.

"I'm glad you like it," he tells her with a smile. "It's good for you."

She points to the steam tray. "Tofu, Papa!" she demands. "I want more tofu!"

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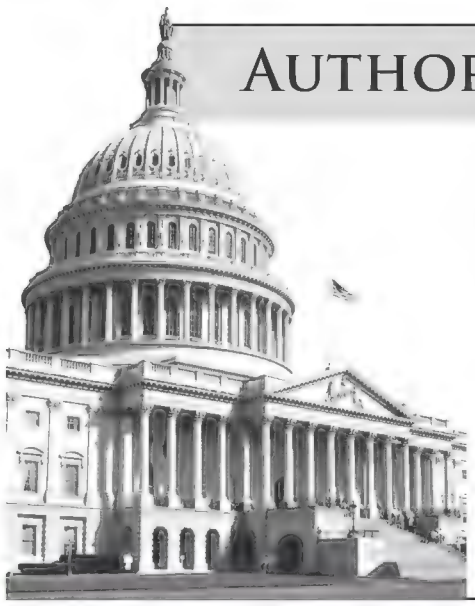

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Scientists have made significant contributions to the safety and well-being of the human race. They have identified laws of nature that explain the functioning of the universe, Earth's flora and fauna, and especially of the physical activities of Homo sapiens. But "why" planet Earth and its occupants ***exist*** is still an admitted mystery to them. What follows explains an important part of that mystery.

Richard W. Wetherill
1906-1989

For millennia great developmental progress has taken mankind from a simple desire to survive to our present complex systems of social laws and inherited customs. Most readers would agree that despite those man-made systems, human affairs are still in a state of confusion with problems and trouble growing daily.

We have races pitted against one another, political groups pitted against one another, as well as individuals who pit themselves against one another in their careers, marriages, and sports to name a few obvious areas.

An appropriate question is, *Why*? Our answer follows: From the beginning people have been living by their own laws of behavior and inherited customs, but those man-made systems contradict a natural law, causing people to get wrong, troublesome results.

That natural law was identified by Richard W. Wetherill almost a century ago and was presented in his book, *Tower of Babel*, published January 2, 1952. It is a law of behavior that Wetherill called the ***law of absolute right***, indicating that rightness in all human activities is required for successful outcomes.

As a result of Wetherill's identification of the law, he developed a program called *humanetics* to explain the wrongness of people's attitudes and behavior and how to correct them. Wrongness has not only been destroying people's lives but also increasingly is damaging the environment that supports the life of the planet.

When scientists identify natural laws, they apply their principles to better human existence and well-being—that is, usually, until the nuclear age developed. Scientists could now investigate nature's behavioral law and help to inform people of *its* principles. Wetherill used words to describe right behavior such as rational, honest, logical, and moral but cautioned that words are just symbols. **The *law* is the final arbiter: Right begets right results; wrong begets wrong results.**

What are society's results? Are people rational and honest? Or do they act on their own motives to do, be, have, get, and become whatever they desire?

People know they must obey nature's laws of gravity, friction, and all the other laws of physics, but for nearly a century scientists, religionists, educators, and the public have resisted acknowledging creation's law of rightness. Is that sane?

Albert Einstein defined insanity as doing the same thing over and over again and expecting a different result. For millennia people have reasoned from man-made laws and inherited customs over and over again, expecting a different result. Instead, over and over again, humanity has been getting incalculable wrong results. Is that sane?

This essay/ad provides a brief description of the behavior that natural law requires of us. Are we going to comply and get out of the muddled mess of human affairs being caused by acting on man-made laws?

Visit our colorful Website www.alphapub.com where essays and books describe the changes called for by whoever or whatever created nature's law of absolute right. The material can be read, downloaded, and/or printed free. Also press a button to listen to the texts on the Website being read aloud—except the seven books.

As people worldwide conform to the behavioral law, they join those who are already benefiting from adhering to it with rational and honest thoughts, words, and action.

That is creation's way to change what is wrong until everything is made right: perfectly behaving people on the one planet in this universe that supports life as we know it!

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RECIPROCATING SAW WITH ROTATING HANDLE

CHICAGO Electric Power Tools

$19.99

LOT NO. 65570

REG. PRICE $39.99

65555567

SAVE 50%

HARBOR FREIGHT TOOLS - LIMIT 1

These valuable coupons are only good when presented at your nearest Harbor Freight Tools store. Offer Ends 4/25/10.

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SUPER COUPON!

LOT NO. 67421

STOREHOUSE

11 DRAWER ROLLER CABINET

INCLUDES:

- 6 Drawer Top Chest
- 2 Drawer Middle Section
- 3 Drawer Roller Cabinet

$149.99

REG. PRICE $289.99

SAVE $140

28637593

HARBOR FREIGHT TOOLS - LIMIT 1

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SUPER COUPON!

CENTRAL PNEUMATIC®

3 GALLON 100 PSI OILLESS PANCAKE AIR COMPRESSOR

LOT NO. 95275

$39.99 REG. PRICE $74.99

35161116

SAVE 46%

HARBOR FREIGHT TOOLS - LIMIT 1

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SUPER COUPON!

CENTRAL PNEUMATIC

3" HIGH SPEED AIR CUTTER

LOT NO. 47077/67425

Item 47077 shown

$5.99

REG. PRICE $15.99

SAVE 62%

80073570

HARBOR FREIGHT TOOLS - LIMIT 1

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SUPER COUPON!

Pittsburgh® LIFETIME WARRANTY

Item 38082 shown

6 PIECE PLIERS SET

LOT NO. 38082/46005

$7.99 REG. PRICE $14.99

SAVE 46%

37885308

HARBOR FREIGHT TOOLS - LIMIT 1

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SUPER COUPON!

LOT NO. 46807

12" RATCHET BAR CLAMP/ SPREADER

REG. PRICE $6.99

$1.99

SAVE 71%

16264921

HARBOR FREIGHT TOOLS - LIMIT 4

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We Will Beat Any Competitor's Price Within 1 Year Of Purchase!

330 STORES NATIONWIDE

TO FIND THE STORE NEAREST YOU CHECK:
1-800-657-8001
or HarborFreightusa.com/smithmag

Proper Manors

Residents, please recycle your parchment

BY DAVID MARTIN

Ah, the homeowners association, which dictates everything from the shape of your shrubs to the color of your house. Such meticulously planned communities are generally thought to be a modern phenomenon, but a recent archaeological excavation near England's Hamme-on-Rye unearthed a 14th-century document that suggests otherwise:

A COVENANT SET TO HAND this Twelfth Day of June in the year of our Lord 1365 between the Manor by the Meadow Association of Freeholders and the owner in fee symple.

Whereas the owner hath entered into this covenant in order to enjoye the especial liffestyle offered by the Manor and to avoid all unnecessary discord, the owner doth hereby acknowledge and acquiesce to certaine rules to ensure the faithful and serene enjoyment of the properties hereby governed, to witte:

COLOUR OF ABODE In the interests of achieving a pleasing harmony and a clene appearance for the community, the colour of the exterior of each abode shall not be changed without leve. If leve be granted, the abode may then be peynted only with one of the following colours: riverbed clay grey, cow dung brown or farm field burnt umber.

SECURITY A balliff charged with keeping the peace is authorized to settle disputes both publick and domestick. Manor hath further entered into contract with the Guild of Sorcerers to provide 24-hour, state-of-the-arte security to ward off the predations of trolls, hobgoblins and Frenchmen.

SAFETY PROVISIONS Each abode shalt be provided with an exterior barrel. Said barrel must be kept full of water to assist in the dousing of fires whether started by the hand of man or mouth of dragon. Barrel water must not be used for drinking, bathing infants or drouning witches.

LIGHTING Manor hath provided torches throughout the community for the convenience of all. However, all torches must be extinguished by curfew and not reignited until the following dusk so as not to obscure viewing of God's celestial firmament.

CLINIC Manor doth operate a clinic at the barbershoppe to provide physic and the healing artes to all residents. Bledeing, leeches and the treatment of excess humours are available upon request. Herbes and medicines will be administered to those possessed of the supplementary potion plan. (Please note that neither exorcism nor treatment for curses is available on site.)

BUSINESS PROHIBITIONS No owner is permitted to conduct a pryvat enterprise on the premises, whether as taverne keeper, trader in holy relics or seller of used oxcarts. Exceptions may be made for brewers and alchemists willing to share 30 percent of their production with the Association.

GARDENS The owner shalt be permitted a garden wherein the following vegetables may be planted: oynouns, gourdes, garlec, lekes, letys and caboches. In addition, owners may cultivate herbes such as belladonna, nightshade and henbane for personal use—though the sale of such herbes is prohibited, owing to their properties for causing fevered hallucinations of the brain.

WEEKLY ENTERTAINMENT Manor shalt provide weekly entertainment at the Commons on behalf of all residents. Forthcoming events include a joust tournament, the Hamme-on-Rye performance of "Punch & Judy Fight in the Crusades," the observational humour of the stand-up Jester, Otto the Corpulent, and an elucidating lecture by Sir Charles Wentworth, founder and co-chair of the Flat Earth Society.

REFUSE REMOVAL Refuse shalt be removed on every Tuesday and Thursday. Homeowners should throw any mullok and other unwanted materials out of their windows to the footpath below. Barrels are available near the Commons for the recycling of parchment and chainmail.

DAVID MARTIN's *essay "Same Olde, Same Olde" appeared in the October 2008* SMITHSONIAN.

ERIC PALMA